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1911/12

BULLETIN
PENNSYLVANIA COLLEGE
GETTYSBURG, PENNA.



LIBRARY
OF THE
UNIVERSITY OF ILLINOIS

ANNOUNCEMENT NUMBER

1911--1912

Vol. 1

Issued Quarterly

No. 4

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Pennsylvania College Bulletin

Announcement Number

1911-1912

Gettysburg, Pa.

Pennsylvania College
Founded in 1832

LIBRARY
OF THE
UNIVERSITY OF ILLINOIS.

Vol. I

Issued Quarterly
Published by the College

No. 4

| 1911 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| JULY | | | | | | | | SEPTEMBER | | | | | | | | NOVEMBER | | | | | | | | | | | | | | | |
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| 1912 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| FEBRUARY | | | | | | | APRIL | | | | | | | JUNE | | | | | | |
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| 16 | 17 | 18 | 19 | 20 | 21 | 22 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 22 | 23 | 24 | 25 | 26 | 27 | 28 |
| 23 | 24 | 25 | 26 | 27 | 28 | | 27 | 28 | 29 | 30 | .. | .. | .. | 29 | 30 | .. | .. | .. | .. | .. |

COLLEGE CALENDAR—1911-1912**1911**

- September 11-12. Monday-Tuesday, Entrance Examinations.
September 13. Wednesday, 8 A. M., College Year begins.
November 29. Wednesday, Noon, Thanksgiving Recess begins.
December 4. Monday, Noon, Thanksgiving Recess ends.
December 21. Thursday, Noon, Christmas Recess begins.
December 29. Friday, 10 A. M., Meeting of Board of Trustees.

1912

- January 3. Wednesday, 7.40 A. M., Christmas Recess ends.
January 29. Monday to Friday, Examinations closing semester.
to
February 2.
February 2. Friday, Noon, First Semester ends.
February 5. Monday, Noon, Second Semester begins.
April 4. Thursday, Noon, Easter Recess begins.
April 9. Tuesday, Noon, Easter Recess ends.
May 21. Tuesday, Junior Latin Examination for Hassler Prize.
June 3-5. Monday-Wednesday, Final Examination of Senior Class.
June 3-7. Examinations closing the year.
June 9. Sunday Morning, Baccalaureate Sermon.
June 9. Sunday Evening, Discourse before Y. M. C. A.

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| June 10-11. | Monday-Tuesday, Entrance Examinations. |
| June 11. | Tuesday, 8 A. M., Meeting of Board of Trustees. |
| June 11. | Tuesday, 10 A. M., Junior Oratorical Contest for Reddig Prize. |
| June 11. | Tuesday Afternoon, Senior Class Day. |
| June 11. | Tuesday Evening, President's Reception. |
| June 12. | Wednesday, 9 A. M., Commencement Exercises. |
| June 12. | Wednesday, 1 P. M., Alumni Collation. |

Summer Vacation

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| September 9-10. | Monday-Tuesday, Entrance Examinations. |
| September 11. | Wednesday, 8 A. M., College Year begins. |
| Nov. 27. | Wednesday, Noon, Thanksgiving Recess begins. |
| December 2. | Monday, Noon, Thanksgiving Recess ends. |
| December 20. | Friday, Noon, Christmas Recess begins. |

1913.

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| January 2. | Thursday, 7.40 A. M., Christmas Recess ends. |
| February 7. | Friday, Noon, First Semester ends. |
| February 7. | Friday, Noon, Second Semester begins. |
| June 11. | Wednesday, Commencement. |



HISTORICAL

The Charter of Pennsylvania College was approved April 7, 1832. The opening paragraphs are:

WHEREAS, the literary and scientific institution in Gettysburg, Adams county, in this Commonwealth, known by the name of Gettysburg Gymnasium, is resorted to by a large number of young men from different portions of this state, and elsewhere, and promises to exert a salutary influence in advancing the cause of liberal education, particularly among the German portion of our fellow citizens; therefore,

SECTION 1. Be it enacted by the Senate and House of Representatives of the Commonwealth of Pennsylvania in General Assembly met, and it is hereby enacted by the authority of the same, That the Gettysburg Gymnasium be, and hereby is erected into a College, for the education of youth in the learned languages, the arts, sciences and useful literature.

SECT. 2. And be it further enacted by the authority aforesaid, That the style and title of said college shall be "Pennsylvania College of Gettysburg" and that it shall be under the management, direction and government of all the subscribers to the funds of said institution, by whose private contributions the said funds have been raised and its present edifice purchased, to wit: John B. McPherson, Thomas C. Miller, Thomas J. Cooper, Samuel Fahnestock, Samuel S. Schmucker, Ernest L. Hazelius, David F. Schaeffer, John G. Morris, Benjamin Kurtz, William Heim, Charles P. Krauth, Frederick D. Schaeffer, J. George Schmucker, J. F. Heyer, Jacob Martin, Abraham Reck, William Ernst, Jacob Medtard, Lewis Eichelberger, Michael Meyerheffer, Jonathan Ruthrauff, Jacob Crigler, John F. Macfarlane, Robert Goodloe Harper, John Herbst, and their successors, to be elected as hereinafter mentioned.

SEC. 3. And be it further enacted by the authority aforesaid, That the said subscribers and their successors, to be elected as hereinafter mentioned, shall forever hereafter be, and they are hereby erected, established and declared to be one body politic and corporate, with perpetual succession in deed and law, to all intents and purposes, whatsoever, by the name, style and title of "The Patrons of Pennsylvania College in Gettysburg, in the County of Adams."

SEC. 4. And be it further enacted by the authority aforesaid, That the aforesaid "Patrons of Pennsylvania College" and their successors shall have power from time to time to elect from their own number or elsewhere, a board of trustees, twenty-one in number (Provided always, That at least three-fourths of them be selected from among the patrons); and at elections either for patrons, or trustees, or teachers, or other officers, and in the reception of pupils, no person shall be rejected on account of his conscientious persuasion in matters of religion, provided he shall demean himself in a sober manner, and conform to the rules and regulations of the college.

Two unique features in the establishment of colleges appear in the foundation of this college. First, the college in a large measure grew out of the necessity of properly preparing men for the Theological Seminary, established in 1826 at Gettysburg. This purpose has never lessened and to-day the institution regards this as an important feature of its work and offers special opportunities to young men preparing themselves for theological studies.

Pennsylvania College in its beginnings, its history and its purpose is closely identified with the Lutheran Church.

The other feature is thus stated in the charter:

In addition to the customary professorships in other colleges, there shall be in this institution a German professorship, the incumbent of which shall, in addition to such other

duties as may be assigned him by the board, instruct such young men as may resort to the institution for the purpose of becoming qualified to be teachers of those primary schools, in which according to the Act passed last session, both German and English are to be taught.

While for a number of years there has been no call for the teaching of German in elementary schools—the college has given prominence to instruction in the German language and literature and has made a specialty of preparation for the teaching profession.

Thus in the foundation of the college the demands of the times were carefully considered and ever since the aim has been to meet the special educational needs of our people.

The college began with no endowment, a small building (now a residence on the south-east corner of Washington and High streets), and a small attendance; but there were able instructors who had a well directed enthusiasm for educational work and a large spirit of self-sacrifice, and this combination commanded success from the beginning.

Among the founders of the college special mention should be made of S. S. Schmucker, D.D., Professor in the Theological Seminary at Gettysburg, who was the directing spirit in evolving the Gettysburg Gymnasium into a college and who presided unofficially over the college for two years. In the State legislature were a number of friends of the college, prominent among them Thaddeus Stevens, the father of the public school system of Pennsylvania. Several money grants were made the college by the legislature, which were largely spent in the erection of the building known as Pennsylvania Hall.

In 1834 Charles Philip Krauth, D.D., was elected President and continued till he became professor in the Theological Seminary in 1850. During this time Pennsylvania Hall was erected (1836-8) and used for recitation rooms, dormitory, President's residence and dining hall. In 1846-7 Linnaean Hall, now the gymnasium, was erected largely through the efforts and labor of the students. In 1850 the Lutheran interest in Franklin College at Lancaster, Pa., was transferred to Pennsylvania College

and used in the endowment of the Franklin Professorship of Greek; this transfer also led to an increase to thirty-six in the number constituting the Board of Trustees, which became a self-perpetuating body with life membership.

In 1850 Henry Louis Baugher, D.D., Professor of Greek, was elected President, continuing in office till his death in 1868. During this period were erected the President's House (1846), Stevens' Hall (1867-8), for the use of the Preparatory Department, and the Professors' residences (1867-8). In 1851-4 the Ministerium of Pennsylvania was largely instrumental in gathering funds for the endowment of the German professorship. In 1864, as the results of a special endowment, considerable sums of money were obtained, the chief being from Mr. John E. Graeff, class of '43, of Philadelphia, for the establishment of a professorship of the English language and literature, and from the Ockershausen brothers of New York, for the endowment of a professorship in Science. In 1868 the will of Mr. Davis Pearson of Philadelphia, provided for certain sums, afterwards added to by his sons, for the endowment of the professorship of Latin.

On the death of President Baugher, Milton Valentine, D.D., class of '50, then a professor in the Theological Seminary, was elected President and continued in the office till he returned to the Theological Seminary in 1884. During this period were erected the McCreary Gymnasium (1872) now the Chemical Laboratory, and the Astronomical Observatory, (1874). The alumni consummated a movement which had been in progress for a number of years in collecting funds for the endowment of an Alumni Professorship which later has been assigned to the department of Mathematics and Astronomy. In 1884 a course of study leading to the degree of Bachelor of Science was first offered.

Harvey Washington McKnight, D.D., I.L.D., class of '65, was elected President in 1884 and continued till his resignation in 1901. This period was marked by the erection of Glatfelter Hall (1888-9), Brua Chapel (1889-90), the steam plant and water plant, the remodeling of Pennsylvania Hall, the altering of the

McCreary Gymnasium to serve as the Chemical Laboratory, and the Linnaean Hall to serve as a Gymnasium (1889-90). South College was erected in 1897. The will of Mr. William Bittinger of Adams County, in 1887, provided funds for the endowment of the chair of Intellectual and Moral Science. In 1889 the father and brothers of Charles H. Graff, M.D., class of '76, deceased, provided the funds for a memorial foundation of a professorship now devoted to Biology and Hygiene. In 1892 Mr. James Strong of Philadelphia, provided a memorial to his wife in the foundation of the Amanda Rupert Strong professorship of the English Bible and Chaplaincy. In 1891-2 a small number of electives were first offered in the Junior and Senior years. The funds for the grading and equipment of Nixon Athletic Field were provided by a student movement, the field being first used in 1895.

Samuel Gring Hefelbower, D.D., class of '91, for several years Professor of German, was in 1904 elected President and continued in office till 1910. During this time there were established professorships in Romance Languages and in Physics, the Department of Philosophy also being separated from chair associated with the presidency, with the addition to the teaching force of assistants in Mathematics, in English, in Physics, and a second assistant in Chemistry. In part the increased expense was met by an increase in student fees and an increase in the number of students. During this time began the formation of Woman's Leagues—who work in the interests of the college, having as their fixed purpose the providing for the salary of a Y. M. C. A. Secretary who also serves as College Registrar.

In 1910 William Anthony Granville, Ph.D., a member of the mathematical faculty of the Sheffield Scientific School of Yale University, was elected President. The inauguration of the new administrative head of the institution occurred in Oct. 1910 and was attended with enthusiasm that promises large results for the material and intellectual progress of the college. Already in Dec. 1910, the first fruits were realized in the foundation of the Burton F. Blough Professorship of Civil Engineering, the department being named in honor of the largest among several

contributors to the fund from Harrisburg, Pa. During the present year a movement has been started for securing an increase of at least \$200,000 to the endowment of the college, of which amount the General Education Board has promised to contribute \$50,000 provided the balance is secured by July 1, 1913, and the debt of the college, \$30,000, is paid before the same date. Beside \$35,000 secured before September, 1911, considerable sums have been promised and the heirs of P. H. Glatfelter of Spring Grove, Pa., have subscribed \$25,000.

The very successful beginning during the last college year of a system of student self-government is in keeping with the constant purpose of the college to develop not only the intellectual growth but also the highest character of its students.

As in the beginning of the college every effort was made to meet the special educational needs of the time and of the community served by the college, so now the establishment of several new courses of study aims to open the college opportunities to an increasing number of young people, who desire a general college training.

LOCATION

Gettysburg is situated in the beautiful rolling area of the red shale belt of Pennsylvania, with its ridges of intrusive rock. A few miles west is the South Mountain ridge of the Blue Mountains. The situation is healthful and there is a good water supply. The town is readily reached from all directions by the Philadelphia and Reading, and the Western Maryland Railways, which connect at Harrisburg, Pa., and Baltimore, Md., with the great railway systems of Pennsylvania and the south.

The community is law abiding and the moral influences are those of the small town as contrasted with the large city, and also there are less distractions from study than prevail in a city.

The historic association of Gettysburg with the Civil War gives the location great additional interest. The events of the Battle of Gettysburg are recorded in inscriptions on several hundred monuments and markers, many of these being of large size and of artistic merit. The U. S. Battlefield Commission has made the field accessible by 35 miles of fine avenues along which are the markings which indicate the battle lines—in some cases the actual entrenchments are preserved. Here also is the National Cemetery where Lincoln made his ever to be remembered dedication speech. Among the thousands of visitors coming annually to the field, are men of national prominence who often speak to the student body. Such surroundings must develop a love of our united country and inspire to better citizenship.

BOARD OF TRUSTEES

Elected

| | | |
|-------|-----------------------------------|---------------------|
| 1873. | Hon. George Ryneal, Jr..... | Martinsburg, W. Va. |
| 1890. | Hon. Edmund D. Graff..... | Worthington |
| 1890. | Hon. Samuel McC. Swope..... | Gettysburg |
| 1890. | William H. Dunbar, D.D..... | Baltimore, Md. |
| 1892. | Thomas C. Billheimer, D.D..... | Gettysburg |
| 1893. | John Wagner, D.D..... | Hazleton |
| 1894. | Charles M. Stock, D.D..... | Hanover |
| 1894. | Matthew G. Boyer, D.D..... | Philadelphia |
| 1896. | John B. McPherson, Esq..... | Boston, Mass. |
| 1897. | John Jacob Young, D.D..... | New York, N.Y. |
| 1897. | William A. Shipman, D.D..... | Johnstown |
| 1898. | Henry C. Picking..... | Gettysburg |
| 1899. | Charles F. Stifel..... | Pittsburgh |
| 1899. | Henry H. Weber, D.D..... | York |
| 1902. | Charles Baum, M.D., Ph.D..... | Philadelphia |
| 1905. | Milton H. Valentine, D.D..... | Philadelphia |
| 1906. | Samuel G. Hefelbower, D.D..... | Princeton, N. J. |
| 1906. | George E. Neff, Esq..... | York |
| 1907. | Luther P. Eisenhart, Ph.D..... | Princeton, N. J. |
| 1907. | Martin H. Buehler | Philadelphia |
| 1907. | Hon. R. William Bream..... | Gettysburg |
| 1907. | Frederick H. Bloomhardt, M.D..... | Altoona |
| 1907. | Alpheus Edwin Wagner, D.D..... | Altoona |
| 1908. | William J. Gies, Ph.D..... | New York, N. Y. |

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| 1908. | William L. Glatfelter..... | Spring Grove |
| 1908. | Frank E. Colvin, Esq..... | Bedford |
| 1908. | John F. Dapp..... | Harrisburg |
| 1908. | George B. Kunkel, M.D..... | Harrisburg |
| 1908. | Jacob A. Clutz, D.D..... | Gettysburg |
| 1910. | William A. Granville, Ph.D., LL.D..... | Gettysburg |
| 1910. | Charles J. Fite..... | Pittsburgh |
| 1910. | Burton F. Blough..... | Harrisburg |

Officers

| | |
|---------------------|------------------------|
| President..... | Hon. Edmund D. Graff |
| Vice President..... | Hon. Samuel McC. Swope |
| Secretary..... | Charles M. Stock, D.D. |
| Treasurer..... | Henry C. Picking |

THE FACULTY

WILLIAM ANTHONY GRANVILLE, PH.D., LL.D. 3 Campus
President and William Bittinger Professor of Intellectual and
Moral Science

HARVEY WASHINGTON MCKNIGHT, D.D., LL.D. 204 Carlisle St.
President Emeritus

JOHN ANDREW HIMES, LITT.D. 130 Carlisle St.
Graeff Professor of English Literature and Political Science

REV. PHILIP MELANCHTHON BIKLE, PH.D. 2 Campus
Dean and Pearson Professor of the Latin Language and
Literature

EDWARD SWOYER BREIDENBAUGH, SC.D. 227 Carlisle St.
Ockershausen Professor of Chemistry and Mineralogy

GEORGE DIEHL STAHLEY, A.M., M.D. Confederate Avenue
Dr. Charles H. Graff Professor of Biology and Hygiene

HENRY BARBER NIXON, PH.D. 1 Campus
Alumni Professor of Mathematics and Astronomy

REV. OSCAR GODFREY KLINGER, A.M. 130 Broadway
Franklin Professor of the Greek Language and Literature

KARL JOSEPH GRIMM, PH.D. 228 Carlisle St.
Professor of the German Language and Literature

REV. CHARLES FINLEY SANDERS, A.M. 97 Springs Avenue
Professor of Philosophy

LOUIS ALEXANDER PARSONS, PH.D. 250 Springs Avenue
Professor of Physics

REV. ABDEL ROSS WENTZ, A.M. Theological Seminary
Acting Amanda Rupert Strong Professor of the English Bible
and Chaplain

RICHARD SHELTON KIRBY, PH.B., C.E. 143 Springs Avenue
Burton F. Blough Professor of Civil Engineering

CLYDE BELL STOVER, A.M. E. Lincoln St.
Instructor in Chemistry

BENJAMIN FRANKLIN SCHAPPELLE, A.M. 228 Carlisle St.
Instructor in the Romance Languages and Literatures

JAMES ALLEN DICKSON, A.M. 149 Chambersburg St.
Assistant in Chemistry

FRED GALLAGHER TROXELL, A.B. 27 Hanover St.
Assistant in Mathematics

FRANKLIN WATTLES MOSER, A.M. 115 Buford Avenue
Assistant in English

STANLEY THOMAS BAKER, B.S. 5 East College
Assistant in Physics

HENRY WOLF BIKLE, A.M., LL.B. Philadelphia
Lecturer on Constitutional Law

REV. ABRAHAM B. VAN ORMER, Pd.D. Shippensburg
Extension Lecturer on Educational Topics

REV. CHARLES HENRY HUBER, A.M. 411 Carlisle St.
Principal of Stevens Hall and Professor of Latin and English

GEORGE MICHAEL RICE, A.M. 42 Stevens Hall
Vice Principal and Instructor in German and History

| | |
|---|---------------------|
| JOHN ROGERS MUSSELMAN, A.B. Instructor in Mathematics and Science | 23 Stevens Hall |
| GROVER CLEVELAND KNIPPLE, A.B. Instructor in Greek and English | 16 Stevens Hall |
| MISS MARY HAY HIMES, A.M. Preceptress in Stevens Hall | 130 Carlisle St. |
| MISS SALLIE P. KRAUTH Assistant Librarian | 3 Baltimore St. |
| REV. HERBERT ADEON RINARD, A.M. Registrar and Secretary of the Faculty | 28 Chambersburg St. |
| FRED C. VAIL Physical Director and Athletic Coach | 28 Chambersburg St. |
| MISS RACHEL GRANVILLE Secretary to the President | 3 Campus |
| BERLIN EMPFIELD Proctor | 7 Middle College |
| CHARLES FAUSOLD Proctor | 14 South College |

COMMITTEES OF THE FACULTY

Class Officers.

| | |
|-----------------------|-------------------|
| Senior Class | Professor Stahley |
| Junior Class | Professor Sanders |
| Sophomore Class | Professor Nixon |
| Freshman Class | Professor Wentz |

Entrance Conditions.—Dean Bikle, Professors Nixon and Grimm.

Library.—President Granville and Professor Grimm.

Bulletin.—Professors Breidenbaugh, Himes, Parsons and Huber, President Granville, ex officio.

Hour Schedule.—Professors Breidenbaugh and Grimm.

Students' Publications.—Professors Sanders, Grimm and Dean Bikle.

Supervision of Finance of Students' Publications.—Dean Bikle, Professors Himes and Breidenbaugh.

Lectures.—Dean Bikle and Professor Wentz.

Advanced Degrees.—Professors Grimm, Bikle and Stahley.

Representative on Athletic Council.—Professor Wentz.

Y. M. C. A. Secretary.—Rev. H. A. Rinard.

Student Council

Harry H. Biedelman, '12.

Berlin Empfield, '12, President.

Charles Fausold, '12, Corresponding Secretary.

Ernest R. Hauser, '12, Vice President.

George E. R. Kapp, '13, Marshall.

Martin L. Peters, '13.

Walter L. Reitz, '13, Recording Secretary.

Clyde A. Fasick, '14.

Robert J. Wolfe, '14.

Wright, '15, Messenger.



ADMISSION

Applicants for admission are required to present evidence of good moral character. An applicant from another school is required to present a certificate of good standing in, and regular dismissal from the institution which he or she has left.

Women are admitted as day pupils, to all the courses of study.

Methods of Admission

Entrance examinations are held on the Monday and Tuesday before the opening of the College year and on the Monday and Tuesday of Commencement Week. The method of admission is by either examination or certificate from approved secondary or high schools or from private instructors. This certificate must state the amount of work done in, and the time given to each subject, with the grades received.

Blank admission certificates can be obtained from the Registrar. These certificates should be filled out and returned to the Registrar as early as possible, at least several days before the opening of the college work.

The Committee on Entrance, from these certificates and by personal interviews when necessary, determines the standing of the applicant.

Each applicant pays to the Treasurer a registration fee of \$5.00. On submitting the receipt for this payment to the Registrar the applicant is informed of the action of the Entrance Committee and given a statement of conditions, if any are found necessary. The student now files with the Registrar a statement of the Group of Studies he proposes taking.

To receive the full advantage of the college course a thorough entrance preparation is indispensable. Students imperfectly prepared for the class they enter do not make satisfactory progress in their work.

Subjects for Admission

The subjects to be presented for admission to the Freshman class are divided into two groups, from which a total of fourteen (14) units are required.

The subjects of Group A, comprising five (5) units, are required of all students.

From Group B the applicant selects nine (9) units under the conditions stated in connection with each group of college studies on pages (32-34). Other entrance units may be allowed in special cases.

The units are based on the requirements of the College Entrance Examination Board.

Group A—(Required of all Candidates)

English..... 3 units

Mathematics.

A Algebra 1 unit

B Plane Geometry 1 unit

Group B—(Elective)

*Greek.**

A Grammar and four books of Xenophon..... 2 units

B Composition, three books of Homer, and
sight translation 1 unit

Latin.

A Grammar and four books of Caesar 2 units

B Composition and six books of Cicero..... 1 unit

C Six books of Vergil 1 unit

German.

Two years 2 units

French.

Two years 2 units

*See page 45 for Beginning Greek in College.

Mathematics.

| | | |
|---|--------------------------|---------|
| C | Advanced Algebra..... | 1½ unit |
| D | Solid Geometry | 1½ unit |
| E | Plane Trigonometry | 1½ unit |

Mechanical Drawing.

| | |
|---------------|--------|
| One year..... | 1 unit |
|---------------|--------|

History.

| | |
|---------------------|--------|
| United States | 1 unit |
| England | 1 unit |
| Ancient | 1 unit |
| Mediaeval | 1 unit |

| | |
|--|--------|
| <i>Geography, Political and Physical</i> | 1 unit |
|--|--------|

Chemistry.

| | |
|----------------|--------|
| One year | 1 unit |
|----------------|--------|

Physics.

| | |
|----------------|--------|
| One year | 1 unit |
|----------------|--------|

Botany.

| | |
|----------------|--------|
| One year | 1 unit |
|----------------|--------|

Zoology.

| | |
|---------------|--------------|
| One year..... | L.....1 unit |
|---------------|--------------|

NOTE.—Those offering college work for entrance will substitute other subjects during the college course.



ADMISSION SUBJECTS IN DETAIL

English

In English the study of the following books, recommended by the National Conference on Uniform Entrance Requirements, will be required for 1912-1913:

A Reasonable familiarity with the substance of the work:

The following are preferred, though alternatives are accepted:

Shakespeare's *Merchant of Venice* and *Julius Caesar*; Addison's *Sir Roger de Coverley Papers*; Goldsmith's *Deserted Village*; Scott's *Ivanhoe* and *Lady of the Lake*; George Eliot's *Silas Marner*; Irving's *Sketch Book*; Tennyson's *Gareth and Lynette*, *Lancelot and Elaine* and *Passing of Arthur*; Ruskin's *Sesame and Lillies*.

B More careful and specific study:

Shakespeare's *Macbeth*; Milton's *Lycidas*, *Comus*, *L'Allegro* and *Il Penseroso*; Washington's *Farewell Address*; Webster's *First Bunker Hill Oration*; Carlyle's *Essay on Burns*.

The candidate will be required to present evidence of a general knowledge of the subject matter and to answer simple questions on the lives of the authors. The form of examination will usually be the writing of a paragraph or two on each of several topics designed to test the candidate's power of clear and accurate expression and will call for only a general knowledge of the substance of the books. Questions involving the essentials of English Grammar and the four fundamental principles of Rhetoric will be part of the examination.

No candidate will be accepted in English whose work is notably deficient in spelling, punctuation, idiom, or division into paragraphs.

Mathematics

A Algebra. The four fundamental operations for rational algebraic expressions; factoring, determination of the highest

common factor and least common multiple by factoring; fractions, involution, evolution, radicals and imaginary quantities. Equations of the first and second degree, ratio and proportion, progressions; binomial theorem for positive integral exponents, and permutations and combinations limited to simple cases.

B Plane Geometry. Five Books. Demonstration of theorems and constructions, including rectilinear figures, circles, proportional lines and similar figures; comparison and measurement of surfaces, including triangles, regular polygons and circles; maxima and minima; originals.

C, D, E The entrance requirements in Advanced Algebra, Solid Geometry and Plane Trigonometry are similar to the work done in these subjects in the College Courses as given on pages 64 and 65.

Mechanical Drawing

One year's work is required and the submission of the drawings done with a certificate from the instructor.

Political and Physical Geography

The requirement in Political Geography is met by any good text-book, in Physical Geography or Physiography by any text-book equivalent to Gilbert and Brigham's Introduction to Physical Geography, Davis' Elementary Physical Geography or Tarr's New Physical Geography.

Greek

A1 Grammar. The candidate must have familiarized himself with the essentials of grammar, namely, the inflections of substantives and verbs; the syntax of cases, and of the moods and tenses of the verb; the simple rules for the composition and derivation of words; the structure of sentences with particular regard to conditional and relative sentences, indirect discourse, and final clauses.

A2 Xenophon. The first four books of the Anabasis.

B1 Prose Composition. The requirements in prose composition involve the ability to translate into idiomatic Greek, continuous narrative based on Xenophon's *Anabasis*, Book II, and other Attic prose of similar difficulty. Due regard must be paid to the principles and practice of accentuation.

B2 Homer. The first three books of the *Iliad* (omitting II, 494-end) or of the *Odyssey*, including the Homeric forms, constructions and prosody.

B3 Sight Translation. One of the most important assets which a student can bring to the study of college Greek is the ability to read easily at sight passages of equal difficulty with the *Anabasis* or the *Hellenica*. For this purpose he should memorize as a working vocabulary, the principal words in Xenophon and the three books of Homer.

Latin

A1 Grammar. Allen and Greenough's preferred.

A2 Caesar's *Gallic War*, Books I-IV.

B1 Prose Composition, including the translation of English passages on Caesar and Cicero.

B2 Six Orations of Cicero, including at least two against Catiline, and the one for Archias, and the one for the Manilian Law.

C Vergil's *Aeneid*, Books I-VI, and so much prosody as relates to Latin versification in general and the dactylic hexameter in particular.

Equivalents will be accepted for work done in Sallust or Ovid or other authors of equal rank.

German

The requirements in German presuppose a systematic course extending over at least two years of school work.

The candidate is expected to be able to pronounce German clearly and distinctly. He must possess an accurate knowledge

of the rudiments of grammar, and should have acquired an elementary German vocabulary. He should be able to translate easy prose and poetry, put into German simple English sentences taken from the language of every-day life and also easy selections from English narrative prose.

French

The requirements in French are similar to those in German, including the ability to pronounce French accurately, to read easy French prose, to put into French simple English sentences taken from the language of every-day life and also easy selections from English narrative prose, and a good knowledge of the rudiments of French grammar.

History

A United States. Montgomery's *Leading Facts of American History*, or its equivalent.

B England. Walker's *Essentials of English History*, or its equivalent.

C Ancient. Myers' *Ancient History*, or its equivalent.

D Mediaeval and Modern. Myers' *Mediaeval and Modern History*, or its equivalent.

Chemistry

The candidate should have such knowledge of the general principles of the science and of the properties of the more important elements as may be obtained by a careful study of a text-book of the scope of Remsen's *Introduction to the Study of Chemistry*, Briefer Course.

The pupil should have performed in the laboratory experiments in number and general character the equivalent of those given in Remsen's *Introduction*. The record of this work must be contained in a note book describing in the pupil's own words the materials used, the apparatus employed (with drawings), the changes occurring and the resulting products with the conclusions properly drawn from the phenomena observed.

This note book must be presented bearing the following endorsement by the instructor. "This note book is a true and original record of experiments actually performed by — in — school during the year —."

Physics

A good high school course, using any standard high school text, covering the simple principles of Physics, descriptive and experimental rather than mathematical, including not less than three class periods and two hours of laboratory work per week for one year. A high school or preparatory course in Physics, laying emphasis on mathematical formulae is not desirable.

Botany

A teacher's certificate showing that a full year of four, one-hour periods a week were devoted to text-book and laboratory study of this subject with the aid of Bergen's *Essentials of Botany* or some other standard book of equal merit. Drawings and note books are required.

Zoology

A teacher's certificate indicating that a full year of four one-hour periods a week were elected in this subject. Davison's *Practical Zoology* or any other standard guide of equal grade will be accepted. Note books and drawings must accompany the certificate.

ADVANCED STANDING

A candidate for advanced standing, in addition to the foregoing studies, is examined in the various subjects which the class he proposes to enter has studied. Credits from Colleges of standing equal to that of Pennsylvania College are accepted.

No one is admitted to the Senior class after the beginning of the second semester of the Senior year.

PARTIAL COURSE STUDENTS

Persons so situated that they are not able or do not wish to pursue a course of study leading to a degree are admitted as partial course students in such subjects as examination may show that the applicant is prepared to pursue with advantage. Such student shall have not less than fourteen units of college work each week.

Students of the Theological Seminary are admitted to single courses in the college.

The Faculty may also admit to one or more single courses such applicants as have special qualifications for the subjects they desire to pursue.



THE GROUP SYSTEM

The courses of study in the college are arranged in groups. These groups are designed to be of equal value in the mental training of the student. This arrangement accomplishes several purposes. It enables the student to select those subjects which are of special value in preparation for subsequent professional study or business. It enables the college to provide for students who do not wish to enter on the older college courses of study. It provides in each group for a general training and broad culture which requires the student not to specialize but to concentrate a fair proportion of his time and energy on one or two related subjects. This gives a fuller training of the mental powers than results from a more diffused and often aimless selection of studies in a too largely elective system.

Each group of studies is described in detail on pages 32-40.

Besides these groups of non-professional courses, provision has recently been made, by the liberality of certain friends, for the establishment of Courses in Civil Engineering and Municipal Engineering.

Value of a Period and of a Unit

In the statement of courses a period, unless otherwise specified, is a weekly exercise for one year. A unit of college work consists of the equivalent of one weekly exercise, either a recitation, a lecture, a laboratory period of two and a half or three hours or an assignment of work on which an examination is held. A lecture having connected with it two laboratory hours counts as one unit and a half.

In the tables, pages 32 to 40, the unit credits are the same as the number of periods, unless otherwise stated.

Group I. Greek and Latin

Entrance requirements: English; Mathematics; Greek A, B; Latin, A, B, C; and two elective units.

This group is largely based on the long established classical curriculum, not however requiring as large an amount of the ancient languages as formerly, thus giving an opportunity for study in other subjects.

This group is specially recommended for those intending to enter the ministerial or legal professions and also provides the necessary foundation for advanced language study.

This group leads to the degree of Bachelor of Arts.

Group II. Latin and Modern Languages

Entrance Requirements: English; Mathematics; Latin A, B, C; German or French or Greek A; History one unit; and two elective units.

In this group the emphasis is laid on the modern languages and provides for those who wish to make a special study of them.

This group is well adapted to preparation for legal or literary pursuits and for teaching.

This group leads to the degree of Bachelor of Arts.

Group III. Latin and Chemistry or Physics

Entrance Requirements: English; Mathematics; Latin A, B, C; German or French; History one unit, and two elective units

In this group emphasis is laid on Chemistry and Physics with the requirement that the student shall give special attention to one of these subjects. The literary training is given by a continuance of Latin during the Freshman year with sufficient time devoted to the modern languages to enable the student to obtain a good command of these languages.

This and the following group are recommended to those who intend to enter on scientific professional studies including engineering or to engage in manufacturing or commercial pursuits, or who intend to teach in these subjects.

This group leads to the degree of Bachelor of Science.

Group IV. Modern Language and Chemistry or Physics

Entrance Requirements: English; Mathematics; two languages, German, French or Latin A, B; and five elective units

(if Latin is offered four) of which not more than two can be in Science.

This group is the same as Group III, except that modern languages entirely replace Latin.

This group leads to the degree of Bachelor of Science.

Group V. Biology, Chemistry and Physics

Entrance Requirements: English; Mathematics; two languages, German, French or Latin A, B; and five elective units (if Latin is offered four) of which not more than two can be in Science.

In this group the student obtains a good foundation in each of the great divisions of scientific study and it is recommended specially to those who intend to enter on medical studies or to teach general science.

This group leads to the degree of Bachelor of Science.

Group VI. Mathematics and Modern Languages

Entrance Requirements: English; Mathematics; two languages, German, French or Latin A, B; and five elective units (if Latin is offered four) of which not more than two can be in Science.

In this group emphasis is laid on mathematical studies and it is specially recommended to those who intend to teach mathematics or to engage in engineering studies.

The mathematical portion of this group can be taken as electives in Group I, by transferring the Physics of the group to the Senior year.

This group leads to the degree of Bachelor of Science.

Group VII. Commerce and Finance

Entrance Requirements: English; Mathematics; German; French and History A, B, C, D, and one elective unit. Commercial Arithmetic may be offered as a substitute for Ancient History.

This group is arranged to meet the needs of those who do not

wish to pursue general scientific or literary studies but desire to prepare themselves for commercial or financial pursuits.

This group leads to the degree of Bachelor of Science.

Group VIII. Civil Engineering

Group IX. Municipal Engineering

Students enter these groups from the Sophomore year of the other courses.



Group I. Greek and Latin

FRESHMAN YEAR.

GREEK 1, 2. *Three periods.*

Oratory, History: Herodotus, Thucydides.

LATIN 1, 2, 3. *Three periods.*

Livy, Horace: Odes, Cicero: De Senectute.

ENGLISH 1, 2, 3. *Two periods.*

Rhetoric, History of American Literature.

MATHEMATICS 1, 2. *Three periods.*

Solid Geometry, Plane and Spherical Trigonometry.

HISTORY 1. *Two periods.*

Political History of Modern Europe.

ENGLISH BIBLE 1. *One period.*

General Introduction.

CHEMISTRY 1. *Three lectures and six laboratory hours.*

General Chemistry.

SOPHOMORE YEAR.

GREEK 3, 4, 5. *Three periods.*

Education, Epic and Lyric Poetry.

LATIN 4, 5, 6. *Three periods.*

Cicero: De Amicitia or De Natura Deorum, Horace: Satires, De Arte Poetica, Tacitus.

ENGLISH 4, 5, 6. *Two periods.*

History of English Literature.

MATHEMATICS 3, 4. *Three periods.*

Advanced Algebra, Plane Analytic Geometry.

GERMAN B. *Three periods.*

Grammar, Composition, Translation.

PHILOSOPHY 1, 2. *Two periods.*

Psychology, Introduction to Philosophy.

JUNIOR YEAR.

ENGLISH 10, 11. *Two periods.*

Shakespeare, Milton, Nineteenth Century Poets.

GERMAN 1 or 2. *Three periods.*

Syntax, Composition, Conversation, Modern Prose, Private reading, (or Classics).

Or

FRENCH A. *Three periods.*

Grammar, Composition, Translation.

EVIDENCES of CHRISTIANITY. *Two periods first semester.*PHILOSOPHY 3, 5. *Two periods.*

Logic; Ethics.

PHYSICS A, or 1, or 1 and 2 as advised. *Three and one-half to five units.*

General Physics.

ELECTIVES to complete *fifteen units.*

SENIOR YEAR.

POLITICAL SCIENCE 2. *Three periods.*

Economics, International Law.

PHILOSOPHY. *Four periods.*

Theism, and from Courses 4-9.

COMPOSITION and SPEAKING *throughout the four years.*ELECTIVES to complete *fifteen units.*

Group II. Latin and Modern Languages

FRESHMAN YEAR.

LATIN 1, 2, 3. *Three periods.*

Livy, Horace: Odes, Cicero: De Senectute.

*GERMAN 1. *Three periods.*

Syntax, Composition, Conversation, Modern Prose, Private Reading.

Or

FRENCH A. *Three periods.*

Grammar, Composition, Translation.

ENGLISH 1, 2, 3. *Two periods.*

Rhetoric, History of American Literature.

MATHEMATICS 1, 2. *Three periods.*

Solid Geometry, Plane and Spherical Trigonometry.

HISTORY 1. *Two periods.*

Political History of Modern Europe.

ENGLISH BIBLE 1. *One period.*

General Introduction.

BIOLOGY 1, 2, 3.

General Biology, Zoology.

CHEMISTRY 1.

General Chemistry.

One PHYSICS A or 1 and 2.

General Physics.

Three lectures and six laboratory hours. Three and one-half to five units.

SOPHOMORE YEAR.

LATIN 4, 5, 6. *Three periods.*

Cicero: De Amicitia or De Natura Deorum, Horace: Satires, De Arte Poetica, Tacitus.

GERMAN 2. *Three periods.*

Classics, Private Reading.

(Or German 1).

FRENCH 1. *Three periods.*

Grammar, Composition, Translation, Modern Prose, Private Reading.

(Or French A).

ENGLISH 4, 5, 6. *Two periods.*

History of English Literature.

MATHEMATICS 3, 4. *Three periods.*

Advanced Algebra, Plane Analytic Geometry.

PHILOSOPHY 1, 2. *Two periods.*

Psychology, Introduction to Philosophy.

JUNIOR YEAR.

GERMAN 4. *Three periods.*

Epochs of German Literature;

Collateral Reading.

(Or German 2).

FRENCH 2. *Three periods.*

Classics, Private Reading.

(Or French 1).

ENGLISH 7-11. *Four periods.*

Nineteenth Century Prose, Nineteenth Century Novel, The Short Story, Shakespeare, Milton, Nineteenth Century Poets.

EVIDENCES of CHRISTIANITY. *Two periods first semester.*

PHILOSOPHY 5. *Two periods second semester.*

Ethics.

ELECTIVES to complete fifteen units.

SENIOR YEAR.

POLITICAL SCIENCE 2. *Three periods.*

Economics, International Law.

MODERN LANGUAGES. *Six periods.*

Advanced Courses.

COMPOSITION and SPEAKING throughout the four years.

ELECTIVES to complete fifteen units.

* Students offering Greek for admission will take German A, elementary course.

Group III. Latin and Chemistry or Physics

FRESHMAN YEAR.

LATIN 1, 2, 3. *Three periods.*
 Livy, Horace: Odes, Cicero: De Senectute.
 GERMAN 1. *Three periods.*
 Syntax, Composition, Conversation, Modern Prose, Private Reading.
 ENGLISH 1, 2, 3. *Two periods.*
 Rhetoric, History of American Literature.

MATHEMATICS 1, 2. *Three periods.*
 Solid Geometry, Plane and Spherical Trigonometry.
 HISTORY 1. *Two periods.*
 Political History of Modern Europe.
 ENGLISH BIBLE 1. *One period.*
 General Introduction.
 CHEMISTRY 1. *Three lectures and six laboratory hours.*
 General Chemistry.

SOPHOMORE YEAR.

ENGLISH 4, 5, 6. *Two periods.*
 History of English Literature.
 GERMAN 2. *Three periods.*
 Classics, Private Reading.
 Or
 FRENCH A. *Three periods.*
 Grammar, Composition, Translation.
 MATHEMATICS 3, 4. *Three periods.*
 Advanced Algebra, Plane Analytic Geometry.

PHILOSOPHY 1, 2. *Two periods.*
 Psychology, Introduction to Philosophy.
 CHEMISTRY 2. *Nine laboratory hours including necessary class exercises.*
 Qualitative Analysis.
 PHYSICS 1, 2. *Three lectures and laboratory work. four or five units.*
 General Physics.

JUNIOR YEAR.

Section in Chemistry.
 ENGLISH 10, 11. *Two periods.*
 Shakespeare, Milton, Nineteenth Century Poets.
 GERMAN 3. *Three periods.*
 Scientific Reading.
 EVIDENCES of CHRISTIANITY. *Two periods first semester.*
 PHILOSOPHY 5. *Two periods second semester.*
 Ethics.
 CHEMISTRY 3. *Nine laboratory hours including necessary class exercises.*
 Quantitative Analysis.
 PHYSICS 5, 6. *Two lectures and two or three laboratory hours. Two and one-half to three units.*
 Chemical and Medical Physics, Light.
 ELECTIVES to complete *fifteen units.*

Section in Physics.
 ENGLISH 10, 11. *Two periods.*
 Shakespeare, Milton, Nineteenth Century Poets.
 GERMAN 3. *Three periods.*
 Scientific Reading.
 EVIDENCES of CHRISTIANITY. *Two periods first semester.*
 PHILOSOPHY 5. *Two periods second semester.*
 Ethics.
 CHEMISTRY 3. *Nine laboratory hours including necessary class exercises.*
 Quantitative Analysis.
 Or
 MATHEMATICS 5. *Three periods.*
 Differential and Integral Calculus.
 PHYSICS to aggregate *four or six units.*

SENIOR YEAR.

Section in Chemistry.
 POLITICAL SCIENCE 2. *Three periods.*
 Economics, International Law.
 CHEMISTRY 4. *Three lectures and laboratory work. Four units.*
 Organic Chemistry. Also at least *three units* in Analytical Chemistry.
 ELECTIVES to complete *fifteen units.*
 PHYSICS 7 is advised.
 COMPOSITION and SPEAKING throughout the *four years.*

Section in Physics.
 POLITICAL SCIENCE 2. *Three periods.*
 Economics, International Law.
 PHYSICS. *Six or more units.*
 ELECTIVES to complete *fifteen units.*

Group IV. Modern Languages and Chemistry or Physics

FRESHMAN YEAR.

GERMAN 1. *Three periods.*
Syntax, Composition, Conversation, Modern Prose, Private Reading.

*FRENCH 1. *Three periods.*
Grammar, Composition, Dictation, Modern Prose, Private Reading.

ENGLISH 1, 2, 3. *Two periods.*
Rhetoric, History of American Literature.

MATHEMATICS 1, 2. *Three periods.*
Solid Geometry, Plane and Spherical Trigonometry.

HISTORY 1. *Two periods.*
Political History of Modern Europe.

ENGLISH BIBLE 1. *One period.*
General Introduction.

CHEMISTRY 1. *Three lectures and six laboratory hours.*
General Chemistry.

SOPHOMORE YEAR.

GERMAN 2. *Three periods.*
Classics, Private Reading.
(Or German 1).

Or
FRENCH 2. *Three periods.*
Classics, Private Reading.
(Or French 1).

ENGLISH 4, 5, 6. *Two periods.*
History of English Literature.

MATHEMATICS 3, 4. *Three periods.*
Advanced Algebra, Plane Analytic Geometry.

PHILOSOPHY 1, 2. *Two periods.*
Psychology, Introduction to Philosophy.

CHEMISTRY 2. *Nine laboratory hours including the necessary class work.*
Qualitative Analysis.

PHYSICS 1, 2. *Three lectures and laboratory work. Four or five units.*

General Physics.

JUNIOR YEAR.

Section in Chemistry.
GERMAN. *Six periods.*
Scientific Reading, Classical Prose.

ENGLISH 10, 11. *Two periods.*
Shakespeare, Milton, Nineteenth Century Poets.

EVIDENCES of CHRISTIANITY. *Two periods first semester.*

PHILOSOPHY 5. *Two periods second semester.*

Ethics.

CHEMISTRY 3. *Nine laboratory hours including the necessary class work.*

Quantitative Analysis.

PHYSICS 5, 6. *Two lectures and two or three laboratory hours. Two and one-half to three units.*

Chemical and Medical Physics, Light.

Section in Physics.
GERMAN 3. *Three periods.*
Scientific Reading.

ENGLISH 10, 11. *Two periods.*
Shakespeare, Milton, Nineteenth Century Poets.

EVIDENCES of CHRISTIANITY. *Two periods first semester.*

PHILOSOPHY 5. *Two periods second semester.*

Ethics.

CHEMISTRY 3. *Nine laboratory hours including the necessary class work.*

Quantitative Analysis.

Or

MATHEMATICS 5. *Three periods.*
Differential and Integral Calculus.

PHYSICS. To aggregate four or six units.

SENIOR YEAR.

Section in Chemistry.
GERMAN. *Three periods.*
Advanced courses.

POLITICAL SCIENCE 2. *Three periods.*
Economics, International Law.

CHEMISTRY 4. *Three lectures and laboratory work. Four units.*
Organic Chemistry. Also at least three units in Analytical Chemistry.

ELECTIVES to complete fifteen units.

PHYSICS 7 is advised.

COMPOSITION and SPEAKING throughout the four years.

Section in Physics.
GERMAN. *Three periods.*
Advanced courses.

POLITICAL SCIENCE 2. *Three periods.*
Economics, International Law.

PHYSICS. *Six or more units.*

ELECTIVES to complete fifteen units.

* Students offering Latin for admission will take the French elementary course.

Group V. Biology, Chemistry and Physics

FRESHMAN YEAR.

- GERMAN 1. *Three periods.*
Syntax, Composition, Conversation, Modern Prose, Private Reading.
- *FRENCH 1. *Three periods.*
Grammar, Composition, Dictation, Modern Prose, Private Reading.
- Or
- LATIN 1, 2, 3. *Three periods.*
Livy, Horace: Odes, Cicero: De Senectute.
- ENGLISH 1, 2, 3. *Two periods.*
Rhetoric, History of American Literature.
- MATHEMATICS 1, 2. *Three periods.*
Solid Geometry, Plane and Spherical Trigonometry.
- HISTORY 1. *Two periods.*
Political History of Modern Europe.
- ENGLISH BIBLE 1. *One period.*
General Introduction.
- CHEMISTRY 1. *Three lectures and six laboratory hours.*
General Chemistry.

SOPHOMORE YEAR.

- GERMAN 2. *Three periods.*
Classics, Private Reading.
- Or
- FRENCH 2. *Three periods.*
Classics, Private Reading.
- ENGLISH 4, 5, 6. *Two periods.*
History of English Literature.
- MATHEMATICS 3, 4. *Three periods.*
Advanced Algebra, Plane Analytic Geometry.
- PHILOSOPHY 1, 2. *Two periods.*
Psychology, Introduction to Philosophy.
- CHEMISTRY 2. *Nine laboratory hours including class work.*
Qualitative Analysis.
- PHYSICS 1, 2. *Three lectures and laboratory work. Four units.*
General Physics.

JUNIOR YEAR.

- GERMAN 3. *Three periods.*
Scientific Reading.
- ENGLISH 10, 11. *Two periods.*
Shakespeare, Milton, Nineteenth Century Poets.
- EVIDENCES OF CHRISTIANITY. *Two periods first semester.*
- PHILOSOPHY 5. *Two periods second semester.*
Ethics.
- BIOLOGY 1, 2, 3. *Three lectures and six laboratory hours.*
General Biology, Zoology.
- CHEMISTRY 3. *Nine laboratory hours including class work.*
Quantitative Analysis.
- PHYSICS 5, 6. *Two lectures and laboratory work. Two and one-half to three units.*
Medical Physics, Light.
(Physics 6 may be taken in Senior year).

SENIOR YEAR.

- POLITICAL SCIENCE 2. *Three periods.*
Economics, International Law.
- BIOLOGY 4, 5, 6. *Three periods.*
Human Anatomy and Physiology, Sanitation and Bacteriology, Histology and Embryology.
- COMPOSITION and SPEAKING throughout the four years.
- CHEMISTRY 4. *Three lectures and laboratory work. Four units.*
Organic Chemistry.
- ELECTIVES to complete fifteen units.

* Students offering Latin for admission will take the French elementary course.

Group VI. Mathematics and Modern Languages

(The Mathematics of this group may be elected in Group I).

FRESHMAN YEAR.

GERMAN 1. *Three periods.*
Syntax, Composition, Conversation, Modern Prose, Private Reading.

*FRENCH 1. *Three periods.*
Grammar, Composition, Dictation, Modern Prose, Private Reading.

ENGLISH 1, 2, 3. *Two periods.*
Rhetoric, History of American Literature.

MATHEMATICS 1, 2. *Three periods.*
Solid Geometry, Plane and Spherical Trigonometry.

HISTORY 1. *Two periods.*
Political History of Modern Europe.

ENGLISH BIBLE 1. *One period.*
General Introduction.

CHEMISTRY 1. *Three lectures and six laboratory hours.*
General Chemistry.

SOPHOMORE YEAR.

GERMAN 2. *Three periods.*
Classics, Private Reading.
Or

FRENCH 2. *Three periods.*
Classics, Private Reading.

ENGLISH 4, 5, 6. *Two periods.*
History of English Literature.

MATHEMATICS 3, 4. *Three periods.*
Advanced Algebra, Plane Analytic Geometry.

PHILOSOPHY 1, 2. *Two periods.*
Psychology, Introduction to Philosophy.

CHEMISTRY 2. *Nine laboratory hours including the necessary class work.*

Qualitative Analysis.

PHYSICS 1, 2. *Three lectures and laboratory work. Four units.*
General Physics.

JUNIOR YEAR.

GERMAN 3. *Three periods.*
Scientific Reading.

ENGLISH 10, 11. *Two periods.*
Shakespeare, Milton, Nineteenth Century Poets.

EVIDENCES of CHRISTIANITY. *Two periods first semester.*

PHILOSOPHY 5. *Two periods second semester.*
Ethics.

MATHEMATICS 5. *Three periods.*
Differential and Integral Calculus.

CIVIL ENGINEERING 1, 2, 3, 4.
Field Work in Surveying, Mechanical Drawing and Descriptive Geometry.

PHYSICS. Course aggregating *four units.*

SENIOR YEAR.

POLITICAL SCIENCE 2. *Three periods.*
Economics, International Law.

MATHEMATICS 6, 7, 8. *Three periods.*
Differential Equations, Solid Geometry, Theoretical Mechanics.

COMPOSITION and SPEAKING *throughout the four years.*

ASTRONOMY. *Two periods.*

ELECTIVES to complete *fifteen units.*

* Students offering Latin for admission will take the French elementary course.

Group VII. Commerce and Finance

FRESHMAN YEAR.

GERMAN 1. *Three periods.*

Syntax, Composition, Conversation, Modern Prose, Private Reading.

FRENCH 1. *Three periods.*

Grammar, Composition, Dictation, Modern Prose, Private Reading.

ENGLISH 1, 2, 3. *Two periods.*

Rhetoric, History of American Literature.

MATHEMATICS 1, 2. *Three periods.*

Solid Geometry, Plane and Spherical Trigonometry.

HISTORY 1. *Two periods.*

Political History of Modern Europe.

ENGLISH BIBLE 1. *One period.*

General Introduction.

BIOLOGY 1, 2, 3.

General Biology, Zoology.

CHEMISTRY 1.

General Chemistry.

One { PHYSICS A, or 1, or 1 and 2 as advised. *Three and one-half to five units.*

SOPHOMORE YEAR.

GERMAN 2. *Three periods.*

Classics. Private Reading.

Or

FRENCH 2. *Three periods.*

Classics, Private Reading.

ENGLISH 4, 5, 6. *Two periods.*

History of English Literature.

MATHEMATICS 3, 4. *Three periods.*

Advanced Algebra, Plane Analytic Geometry.

PHILOSOPHY 1, 2. *Two periods.*

Psychology, Introduction to Philosophy.

FINANCE. *Two periods.*

Theory of Accounts, Theory of Investments.

ELECTIVES to complete *fifteen units.*

JUNIOR YEAR.

GERMAN. *Three periods.*

Advanced Courses.

Or

FRENCH. *Three periods.*

Advanced Courses.

ENGLISH 7-11. *Four periods.*

Nineteenth Century Prose, Nineteenth Century Novel, The Short Story, Shakespeare, Milton, Nineteenth Century Poets.

EVIDENCES of CHRISTIANITY. *Two periods first semester.*PHILOSOPHY 5. *Two periods second semester.*

Ethics.

POLITICAL SCIENCE 1. *Two periods.*

American Politics, American Government.

COMMERCE. *Two periods.*

Commercial Law, History of Commerce.

ELECTIVES to complete *fifteen units.*

SENIOR YEAR.

POLITICAL SCIENCE 2. *Three periods.*

Economics, International Law.

PHILOSOPHY. *Four periods.*

Chosen from Courses 3-10.

HISTORY. *Three periods.*

From Courses 2-6.

BUSINESS. *Two periods.*

Statistics, Business Practice.

ASTRONOMY. *Two periods.*GEOLOGY. *Two periods.*COMPOSITION and SPEAKING *throughout the four years.*

Group VIII. Civil Engineering.

FRESHMAN AND SOPHOMORE YEARS.

During Freshman and Sophomore years Civil Engineering students are classed under Groups III, IV, V or VI, with the following additional work required during Sophomore year:

- C. E. 1. *Two periods first semester.*
Mechanical Drawing.
- C. E. 2. *Two periods second semester.*
Descriptive Geometry.
Summer Work.
- C. E. 3. *Three weeks immediately preceding the beginning of Junior year.*
Field Work in Surveying in connection with Course 4.

JUNIOR YEAR.

- C. E. 4. *Two periods first semester.*
Elementary Surveying, Office Work.
- C. E. 5. *Two periods first semester.*
Three periods second semester.
Mechanics.
- C. E. 6. *Three periods second semester.*
Railroads. (A).
- C. E. 7. *One period second semester.*
Cement Testing and Highways.
Summer Work.
- C. E. 8. *Three weeks immediately preceding the beginning of Senior year.*
Field Work in Surveying, in connection with Courses C. E. 9 and C. E. 16.
- PHYSICS 3. *Two periods first semester.*
Mechanics.
- PHYSICS 4. *Two periods second semester.*
Thermodynamics.
- MATHEMATICS 5. *Three periods.*
Differential and Integral Calculus.
- MATHEMATICS 9. *Two periods first semester.*
General Astronomy (abridged).
- MINERALOGY 1. *Two periods first semester.*
Crystallography, Determinative Mineralogy.
- ENGLISH 10 11. *Two periods.*
Shakespeare, Milton, Nineteenth Century Poets.
- EVIDENCES of CHRISTIANITY. *Two periods first semester.*
- PHILOSOPHY 5. *Two periods second semester.*
Ethics.

SENIOR YEAR.

- C. E. 9. *Two periods first semester.*
Advanced Surveying, Office Work.
- C. E. 10. *Three periods first semester.*
Hydraulics
- C. E. 11. *Three periods.*
Structural Design.
- C. E. 12. *Two periods second semester.*
Structural Drafting.
- C. E. 13. *Two periods second semester.*
Masonry.
- C. E. 16. *Two periods second semester.*
Railroads. (B).
- C. E. 17. *One period second semester.*
Contracts and Specifications.
- PHYSICS 7. *Two periods first semester.*
Elements of Electrical Engineering.
- GEOLOGY 1. *Two periods first semester.*
Structural and Dynamical Geology.
- POLITICAL SCIENCE 2. *Three periods.*
Economics, International Law.
- GERMAN 3 or
SPANISH. *Two periods.*

Group IX. Municipal Engineering

FRESHMAN AND SOPHOMORE YEARS.

During Freshman and Sophomore years Municipal Engineering students are classed under Groups III, IV, V or VI, with the following additional required work during the Sophomore year:

- C. E. 1. *Two periods first semester.*
Mechanical Drawing.
- C. E. 2. *Two periods second semester.*
Descriptive Geometry.
Summer Work.
- C. E. 3. *Three weeks immediately preceding the beginning of Junior year.*
Field Work in Surveying, in connection with Course 4.

JUNIOR YEAR.

- C. E. 4. *Two periods first semester.*
Elementary Surveying, Office Work.
- C. E. 5. *Two periods first semester.*
Three periods second semester.
Mechanics.
- C. E. 6. *Three periods second semester.*
Railroads. (A).
- C. E. 7. *One period second semester.*
Cement Testing and Highways.
Summer Work.
- C. E. 8. *Three weeks immediately preceding the beginning of Senior year.*
Field Work in Surveying in connection with Courses C. E. 9 and C. E. 16.
- PHYSICS 3. *Two periods first semester.*
Mechanics.
- PHYSICS 4. *Two periods second semester.*
Thermodynamics.
- MATHEMATICS 5. *Three periods.*
Differential and Integral Calculus.
- MATHEMATICS 9. *Two periods first semester.*
General Astronomy (abridged).
- MINERALOGY 1. *Two periods first semester.*
Crystallography, Determinative Mineralogy.
- ENGLISH 10, 11. *Two periods.*
Shakespeare, Milton, Nineteenth Century Poets.
- EVIDENCES of CHRISTIANITY. *Two periods first semester.*
- PHILOSOPHY 5. *Two periods second semester.*
Ethics.

SENIOR YEAR.

- C. E. 9. *Two periods first semester.*
Advanced Surveying, Office Work.
- C. E. 10. *Three periods first semester.*
Hydraulics.
- C. E. 11. *Three periods.*
Structural Design.
- C. E. 13. *Two periods second semester.*
Masonry.
- C. E. 14. *Two periods second semester.*
Sewerage
- C. E. 15. *Two periods second semester.*
Water Supply Engineering.
- C. E. 17. *One period second semester.*
Contracts and Specifications.
- CHEMISTRY. *Two periods first semester.*
Water Analysis.
- BIOLOGY and HYGIENE 5. *Two periods second semester.*
Sanitation and Bacteriology.
- GEOLOGY 1. *Two periods first semester.*
Structural and Dynamical Geology.
- POLITICAL SCIENCE 2. *Three periods.*
Economics, International Law.
- GERMAN 3 or
- SPANISH. *Two periods.*

COURSES OF INSTRUCTION

English

Professor HIMES and Mr. MOSER.

1. Rhetoric. A study of the subject with the aid of a text-book. The aim of the course is (1) to acquaint the student with the principles of good writing, and (2) to lead to an appreciation of good literature. A course in composition is conducted in connection with this subject.

Freshman course. Two periods, first semester.

2. History of American Literature. A study of the subject with the aid of a text-book. Quizzes, collateral reading, papers.

Freshman course. Two periods, second semester.

3. Composition. Weekly themes on assigned subjects corrected and commented on by the instructor, in personal consultation with the student.

Freshman course throughout the year.

4. History of English Literature. A text-book forms the basis of study. Quizzes, collateral reading, papers.

Sophomore course. Two periods throughout the year.

5. Composition. Advanced work in description and narration. Themes corrected and commented on in personal consultation with the student.

Sophomore course throughout the year.

6. Elocution. A course of lectures on the subject. Vocal exercises, declamations, reading. Practice in the preparation and delivery of speeches.

Sophomore course throughout the year.

7. Nineteenth Century Prose. A study of the development of modern prose. Selected readings from Coleridge, Lamb, De Quincey, Macaulay, Carlyle, Ruskin, Arnold and others.

Junior course. Two periods, first third of year.

8. Nineteenth Century Novel. A study of the development and structure of the novel. Lectures, collateral reading, papers. Junior course. Two periods, second third of year.

9. The Short Story. A study of its principles and structure. Selections from Hawthorne, Poe, Stevenson, Kipling, Harte, Twain, O. Henry, Ruth Stuart, Aldrich, Wister and others. Junior course. Two periods, last third of year.

1-9 Mr. MOSER.

10. Course in English Poetry.

A Shakespeare—Dramatic Art. Six plays are analyzed and interpreted, the most suggestive and important passages being read in the class. The writing of dialogue is practiced.

B Milton—Epic Art. Five books of the *Paradise Lost* are read; the views of commentators are examined; Milton's conception of the material and spiritual universe is elucidated; portions of the poem are memorized.

C Nineteenth Century Poets. Selected poems of Wordsworth, Coleridge, Byron, Shelley, Keats, Tennyson, Browning, Matthew Arnold, D. G. Rossetti and Swinburne are analyzed for thought and structure.

Junior course. Two periods throughout the year.

11. Writing and Speaking. Required of all students. The rendering of declamations and orations and the preparation of essays and debates are continued throughout the Junior and Senior years. Subjects assigned are suggested either by miscellaneous matters of interest or by topics found in the text-books studied. To secure care and accuracy on the part of the student the written work is read and criticised privately by the instructor.

10 and 11 Professor HIMES.

German

Professor GRIMM, and Mr. SCHAPPELLE.

A An elementary course. For students with no preliminary training in German, but with several years' work in other lan-

guages. It includes the study of grammar, practice in writing and speaking German, translation of prose and poetry, and the memorizing of simple poems.

Three periods throughout the year.

B A course for beginners similar to German A, but especially designed for students in the Greek-Latin Group. For such students it completes the requirements in German for the degree of Bachelor of Arts. Those, however, who have the ministry in view, are advised to take also German 1 or German 2.

Three periods throughout the year.

(Omitted 1911-1912).

1. For students who have presented German for admission; also for those who have completed German A. It may, likewise, be taken by students who have passed in German B. This course comprises a brief review of grammar, a careful study of syntax combined with oral and written prose composition, exercises in conversation, and readings, both with previous preparation and at sight, from standard writers of modern German prose. Some time is also given to the reciting of ballads and lyrics. Outside reading may be assigned.

Three periods throughout the year.

2. For students who have passed in German, also open to those students who have attained a grade of not less than C in German B. This course is devoted to the study of selections from classical authors, chiefly from Lessing, Goethe, and Schiller, with some attention to the laws and forms of poetics. It is partly conducted in German. Private reading is required.

Three periods throughout the year.

3. For candidates for the degree of Bachelor of Science, also open to others who have completed German 1. This course consists in the cursory reading in class of German essays of a general scientific character, together with private assignments on some special subject in Science or other college studies.

Two or three periods throughout the year.

4. For those students who have chosen German as their principal subject in the Modern Language-Latin Group, open also to others who satisfy the instructor of their fitness to take it. The work in this course, conducted as far as practicable in German, consists in lectures on the main epochs of the German language and literature, with collateral reading from representative poets and masters of German style.

A From the dawn of the modern period to the present time, with some attention to German literature in America.

Two or three periods, first semester.

B From the beginning of German literature to the dawn of the modern period.

Two or three periods, second semester.

5. An elective course on German literature in the period of the Reformation, with special reference to Luther and the church hymns. Open to advanced students in German.

Hours arranged to suit the convenience of instructor and students.

6. An elective course devoted to the discussion of grammatical topics, advanced composition, and the critical reading of selected texts. Special attention is given to the needs of those students who wish to teach German in the public or secondary schools.

Hours arranged to suit the convenience of instructor and students.

7. A course aiming to give practice in German correspondence, and to widen the student's vocabulary of modern German by means of extracts from newspapers, periodicals, and other suitable reading. It also presents to the student a general view of German land and people, and acquaints him with the history of the Germans in our country. Attention is given to the needs of those looking forward to a business career. As far as practicable, the course will be conducted in German.

Hours to be arranged.

(Omitted 1911-1912).

Deutscher Verein. Opportunity for more extended German conversation and discussions referring to German life, literature, and culture is offered to advanced students in a voluntary German Club, meeting fortnightly from November to April inclusive.

Greek

Professor KLINGER.

1. Oratory. One oration each of Lysias, Isocrates, and Demosthenes will be read and the orations compared with particular reference to the development of Attic prose-style. Collaterally, by means of lectures and a syllabus, the rhetoric of the ancient Greek writers will be studied. These lectures are based on Dionysius of Halicarnassus and Demetrius and go with some detail into the question of stylistic qualities. There will be a complete review of formal grammar with sufficient prose composition to fix the forms of sentence-structure, a constant drill in vocabulary, and, so far as possible, a study of the social conditions in Athens after the Peloponnesian War.

Freshman course. Three periods, first semester.

2. History. Herodotus and Thucydides, with syntactical studies, drill in forms, and studies in the principles of word-composition as before. A thorough analysis will be made of the style of each author, involving the peculiarities of diction, of sentence-structure and of idiom. Particular emphasis will be laid on the speeches of Thucydides as examples of the austere style. While studying Herodotus a great deal of sight-reading will be required and private readings will be assigned to be reported on in the class-room.

Freshman course. Three periods, second semester.

3. Education. Plato's *Apology*, with large selections from the Socratic dialogues. The aim will be to make the student acquainted with the unique character and method of Socrates, his influence (through Plato and others) on succeeding thought. Three lectures will be offered in the subject of Greek Education, dealing with Ideals, Theories, and the Rise of the Sophists.

4. Epic Poetry. Homer, the Iliad or the Odyssey. The leading episodes will be read rapidly, a study made of the verse and structure of the epic, of Homeric religious conceptions, and of the Homeric question. Lectures and assigned readings will be given on the age of Homer as a period of Greek history.

Sophomore course. Three periods, first semester.

5. Lyric Poetry. Tyler's Selections, followed by either Pindar or Theocritus. The rise of Greek lyric poetry will be traced, its verse-structure studied, and its influence on Greek social life noted. Collaterally a study of the history of Greek literature will be made by means of text and lectures, and the influence of Greek literature on later European literature will be pointed out.

Sophomore course. Three periods, second semester.

6. Tragedy. Aeschylus and Sophocles or Euripides, with the history of the Greek drama; the Greek theatre, method of presenting plays, costumes, masks, etc. Differences in style, motive, and religious conception in the three great tragic poets will be indicated and discussed.

Junior course. Two periods, first semester.

7. Greek Life and Art. The social life of the ancient Greek both private and public, including the history of Greek art. This course does not presuppose a knowledge of the Greek language and is open to all students.

Junior course. Two periods, second semester.

8. Greek Literature in English Translation. Beginning with the epic period, a progressive study will be made of the different types of Greek literature by means of lectures, assigned readings, and the private study of selected works on which reports will be regularly required. The course will cover the subject up to Euripides in Tragedy. Open to all students.

Senior course. Three periods, first semester.

9. Continuation of Course 8. Greek Comedy, History, and Plato.

Senior course. Three periods, second semester.

Beginning Greek in College

An arrangement is proposed by which students can begin the study of Greek in the Freshman year and pursue the subject during the college course. In this case fourteen entrance units are required corresponding to the requirements for Group II.

Latin**Professor BIKLE.**

Allen and Greenough's Latin Grammar and Harper's Latin Lexicon are recommended. Of the smaller dictionaries the student is advised to get the Elementary Latin Dictionary by Charlton T. Lewis.

1. Livy. Selections from Book I, and the Hannibalian War in Books XXI and XXII. Special attention is given to syntax and Livy's peculiarities of style. Collateral reading on the Punic Wars, and lectures on Rome and Carthage.

Freshman course. Three periods during the first semester to the Christmas vacation.

2. Horace. Selections from the Odes, including a critical interpretation with special attention to the Horatian meters and the mythological and historical allusions of the text. Berens' Hand-Book of Mythology is recommended. Collateral reading on Horace as a lyric poet.

Freshman course. Three periods from the beginning of January to the last of March.

3. Cicero. The *De Senectute* will be read with thorough drill in syntax, special attention being given to the mode uses of the Latin Subjunctive.

Freshman course. Three periods from the last of March to the close of the academic year.

N. B. During part of the Freshman year there will be, in connection with the reading of the Latin text, drill in Latin Prose Composition, embracing a rapid review of Latin syntax, with oral and written practice in the principles involved.

4. Cicero. The *De Amicitia* or the *De Natura Deorum*. Rigid drill in syntax will be continued with training in reading the Latin text with expression. Collateral reading of the life and times of Cicero. Informal lectures on Cicero's philosophical views.

Sophomore course. Three periods a week during the first semester to the Christmas vacation.

5. Horace. *Satires* and the *De Arte Poetica*. After the study of some selected satires the *Ars Poetica* is read, and each student is required to prepare a written analysis of the poem. A review of the dactylic hexameter versification.

Sophomore course. Three periods from the beginning of January to the last of March.

6. Tacitus. The *Agricola* or selections from the *Annals*. Along with the translation of the text there will be a study of the times in relation to the literature of this period, and special attention will be given to the characteristics of the Silver Age Latinity.

Sophomore course. Three periods from the last of March to the close of the year.

7. Quintilian. Tenth Book of the *Institutes*. The student is required to give a close study of the terms used by Quintilian in literary criticism, and to make a summary and classification of the Greek and Roman authors.

Junior course. Two periods during the first semester to the Christmas vacation.

8. Juvenal. Selected *Satires*. With full explanations of the text, and collateral reading on the private and social life of the Romans of the Empire. Followed by a short course in Roman Antiquities.

Junior course. Two periods from the beginning of January to the close of the college year.

9. Terence or Plautus. The *Andria* of Terence or the *Captivi* of Plautus. The *Dramatis Personae* are assigned

to special members of the class and the parts rendered both in Latin and English. Informal lectures on the Roman theatre; also on the origin and development of the Latin drama and the value of the Roman comedy to the philologist and the student of Roman life.

Senior course. Two periods for twelve weeks.

10. Latin Literature. A course of lectures embracing a general survey of the whole field, and aiming to trace the rise and subsequent development of the various kinds of prose and verse among the Romans, with special attention to the writers of the Golden and Silver Ages. Or,

Roman History. A course of lectures covering the period from 150 B. C. to 100 A. D.

Senior course. Two periods for ten weeks.

11. Roman Law. Morey's Outlines as the chief text-book. After a careful study of the historical development and content of Roman Law, a paper is required from each member of the class on a subject assigned for special investigation. Or,

Roman Constitutional History. The subject is pursued with the aid of a text-book.

Senior course. Two periods for fourteen weeks.

ROMANCE LANGUAGES

French

MR. SCHAPPELLE.

A An elementary course for students who have not presented French for admission. For students in the Classical department, or in Science departments requiring Latin, it satisfies the requirements in French for the baccalaureate degree.* This course includes careful drill in pronunciation, the study of the essentials of grammar with constant exercises in turning English into French, and the translation of easy French texts.

Three periods throughout the year.

*Students who have the ministry in view may substitute German 7 or 11.

1. An intermediate course for students who have presented French for admission, also open to those who have passed in French A. This course comprises the study of grammatical principles, composition, exercises in pronunciation, dictation, and readings from standard writers of modern prose. Outside reading may be assigned.

Three periods throughout the year.

2. Advanced course. Open to all students who have completed with credit French 1, or who have done equivalent work. This course is devoted to rapid reading of French classics, with special reference to Corneille, Racine, Moliere, Voltaire. Some time is also given, during the second semester, to more difficult representative prose. Private reading is required.

Two or three periods throughout the year.

3. A course in advanced composition and conversation, elective only for such students who satisfy the instructor that they are qualified to take it. This course includes practice in the writing of French letters.

One period throughout the year.

Italian

Professor GRIMM.

1. Elementary course. Open to those students who have completed the requirements in French. This course aims to give the student a thorough training in the rudiments of the Italian language and to enable him to read ordinary Italian with ease and accuracy.

Three periods throughout the year.

Spanish

Professor GRIMM.

1. Elementary course. Open to those students who have completed the requirements in French. This course is intended

for those who desire a knowledge of the essentials of the Spanish language, either for literary work or for a business career.

Three periods throughout the year.

The courses in Italian 1 and Spanish 1 are offered in alternate years.

Comparative Philology

Professor GRIMM.

1. A course open to advanced students, dealing with the principles of Linguistic Science.

One period throughout the year.

2. Beginners' course in Sanskrit. Open to advanced students. This course includes the study of grammar and the interpretation of an easy text from Lanman's Reader.

Two periods throughout the year.

(Omitted 1911-1912).

Biblical Department

Professor WENTZ.

1. General Introduction to the English Bible. This course aims to bring to the student a sympathetic knowledge of the life and thought of that nation which has most vitally influenced our own civilization. To do this reference must be made to Biblical history and geography. But the chief object is to acquaint the student with the Bible as the record of the advance and culmination of the highest religious consciousness of the human race. The distinctive forms of thought contained in the Bible from the beginnings of Hebrew history down to the close of the Apostolic Age are studied in succession. The original message of the writers is sought out and translated into the logic of the Occidental mind. This course is of necessity only introductory, but it is intended to show that a knowledge of Biblical thought and literature is an essential and integral part of a liberal education.

Freshman course. One period throughout the year.

2. *Literary Study of the Bible.* The Bible is studied as a body of English literature and the sacred writings are subjected to a morphological analysis. The study of the literary forms is entirely independent of the historical investigation. The distinctive types of literary structure in the Bible as presented by Moulton in his *Modern Reader's Bible* are studied in detail and their permanent literary value is noted. The underlying principle of this study is that a thorough understanding of the outer literary form is an essential guide to an appreciation of the inner matter and spirit.

Sophomore course. One period throughout the year.

3. *Life of Christ.* A Survey is given of the political, religious, and social conditions in the time of Christ as the background necessary to an understanding of His life and teachings. The events of His life are then studied from the four-fold gospel itself, special attention being given to chronology and harmony. An outline of His teachings, ethical as well as religious, is ad-
duced. The aim is not apologetic but purely historical.

Junior course. One period throughout the year.

4. *New Testament Study.* This course embraces a study of New Testament Greek. Some book of the New Testament chosen by the class is read in the original. The study of Biblical Greek has its approach from the classic side but special attention is given to the distinctive peculiarities of Hellenistic Greek as a later and less artificial dialect of the elaborate and polished language of orators and philosophers. The student is familiarized with the vocabulary of the New Testament. Etymology and syntax are systematically studied.

This course is open to all who have had two years of Greek.

One period throughout the year.

Christian Evidences

Professor WENTZ.

A defensive statement of the Christian religion as the divinely revealed religion of redemption. From a consideration of the historical foundations the essence of Christianity is deduced in

brief and thus the method of defense is determined. Evidences external and internal are considered. The miraculous element in the New Testament is vindicated. Special reference is made to those elements in our present intellectual environment which tend to make faith difficult. In conclusion, Christianity is compared with the ethnic religions, and the absolute character and the permanent significance of the Christian verities are maintained.

Junior course. Two periods, first semester.

Commerce and Finance

Professor _____

1. History of Commerce. A history of the general development of commerce and finance in the United States, including the history of banking, the growth of corporate industry and manufacturing.

Two periods, first semester.

2. Commercial Law. The legal principles underlying and governing business transactions of every variety; contracts, partnerships, corporations, etc., from the viewpoint of organization, rights and liabilities.

Two periods, second semester.

3. Statistics. The elements of statistical method such as find their practical application in the problems of price, wages, labor, and social data in general, as these affect the economic world.

4. Finance. Theory of accounts, banking methods, reserve funds, dividends, taxation and distribution of wealth.

5. Investments. This course aims to enable the student to analyze securities so as to judge intelligently of their value; such as stocks, bonds, insurance, etc.

Courses 3, 4 and 5 cover two periods, extending through the year. Course 4 deals with business methods, Course 5 with business instruments, and Course 3 with the social and economic

data which cause fluctuations in stocks, bonds, etc., the general aim being to give a comprehensive view of the factors entering into practical finance.

History

Professor WENTZ.

1. Political History of Modern Europe. The essential landmarks of ancient and mediaeval history are recalled and fixed definitely in mind and a brief introductory survey is given of the civilization of Europe at the end of the Middle Ages. Then beginning with the Protestant Reformation the course of the historical development of modern Europe is traced by a thorough study of the Modern Period in connection with Schwill's Political History of Modern Europe, the aim being to develop the general background of historical knowledge and to introduce the student to methods of college historical study.

Freshman course. Two periods throughout the year.

2. Advanced Course in English History. After a rapid introductory survey of the Anglo-Saxon period, the course begins with the Norman conquest and deals with the details of historical development down to the present time. Stress is laid upon such phases of English history as will specially aid the student to understand the modern political development in continental Europe and in the United States. The materials of the study include text-books, lectures, secondary authorities, and sources, with frequent discussions of assigned readings.

Three periods, first third of year. Given in alternate years with Course 3.

Prerequisite, 1.

3. Advanced Course in United States History. This course comprises a study in the epochs of our national history. An effort is made to discern the social and economic forces that have been operative in the development of the republic and thus lead to an understanding of the national problems of the present. Much attention is given also to American biography, and bio-

graphical essays, sketches of epochal events, and frequent reports on assigned topics are required.

Three periods, first third of year. Given in alternate years with Course 2. Omitted 1911-12.

Prerequisite, 1.

4. The History of the German Empire and its Present Organization. This study begins with the changes in the political map of Europe after the Congress of Vienna and traces the gradual nationalization and unification of Germany. It concludes with a detailed study of the present organization of the Empire and an examination of the political, religious, and economic conditions of the present day. The characteristic phenomena are constantly culled from the sources.

Three periods, second third of year.

Prerequisite, 1.

5. Lectures on the History of Ancient and Mediaeval Civilization. This course presupposing a knowledge of the facts and events of history makes a study of the growth of historical ideas. The forces that have moved men and nations are sought out and the causes which have operated to direct the tendencies of peoples and to develop institutions are set forth. The unity and continuity of history are developed.

Three periods, last third of year. Given in alternate years with Course 6.

Prerequisite, 1.

6. Lectures on Modern and Contemporary Civilization. A continuation of Course 5, the aim here being to analyze the constitutive and abiding elements of our own civilization, to lead the student to a thorough understanding of the general trend of modern civilization and thus enable him to determine his relation to the world society of to-day.

Three periods, last third of year. Given in alternate years with Course 5. Omitted 1911-12.

Prerequisite, 1.

Philosophy

Professor SANDERS.

1. Psychology. A course in general psychology which aims to acquaint the student with the phenomena of mind, the methods of psychological investigation and the practical bearing of the various mental functions on the problems of ethics, pedagogy, etc.

Sophomore course. Two periods, first semester.

2. Introduction to Philosophy. The course in general psychology suggests the problems of philosophy. The course in Introduction aims to acquaint the student with the content of philosophy, the origin and development of the various problems, the aim and method of philosophy, the results which have been attained, and its relation to the other departments of human thought.

Sophomore course. Two periods, second semester.

3. Logic. An introductory course in the laws of thought. The evolution of the concept, its development into judgment and inference, the systematic function of classification, the explanatory function of generalization, and the methodology of proof and investigation are studied with a view to securing a foundation for the theory of knowledge and effective scientific method.

Junior course. Two periods, first semester.

4. Sociology. A study of the nature of society and its problems. Starting with the psychological factors of sociation, the development of social institutions, the economic and cultural factors of social progress and the elimination of hindrances—evils—are taken up in turn with a view to an understanding of the methods of social improvement.

Juniors and Seniors. Two periods, first semester.

5. Ethics. A study of human conduct. The concept of personality and the idea of self-realization, as forming the background of moral judgment, are wrought into a system which ex-

plains the origin of the moral motives as well as their implication of God and immortality.

Junior course. Two periods, second semester.

6. History of Philosophy.

A Ancient and Mediaeval Period. This course traces the rise and progress of reflective thought as it appears among the Greeks and culminates in Scholasticism. Special stress is placed upon the Greek thinkers, with a view to acquiring an understanding of the spirit of philosophy.

Senior course. Three periods, first semester.

B Modern Period. This course covers the period from the renaissance to the present time. Special stress is placed upon the great systems. The student is required to read selections from the great thinkers and report on them, the constant aim being to cultivate the philosophising attitude, thus furnishing a basis for independent thought as well as an inspiration to do original thinking.

Senior course. Three periods, second semester.

7. Philosophy of Religion. A study of religion as a distinct factor in human development. The aim of the course is to show the nature of religion and to interpret the various forms in which it manifests itself.

Senior course. Two periods, first semester.

8. Theism. This is essentially a course in metaphysics. Beginning with the method of system building, the student is introduced to the meaning of a world-view, the factors which a comprehensive and consistent view must recognize, and the reasons for regarding Theism as the theory which best meets existing requirements.

Senior course. Two periods, second semester.

Prerequisite, 1, 2 and 3.

Education

Professor SANDERS.

1. History of Education. A study of the most important movements in the history of education, the factors and personages instrumental in bringing about the various steps in the long line of progress.

Prerequisite, Philosophy 1 and 2.

2. Pedagogy. A study of the principles of the educative process, the growth of the mind and the laws governing its development.

Prerequisite, Philosophy 1, 2 and 3.

3. School Organization and Method of Teaching. A study of the practical problems of organization and the application of principles.

Prerequisite, Philosophy, 1, 2 and 3.

Courses 2 and 3 will be given in alternate years.

The State School Code requires of all teachers, courses in Psychology, Logic, History of Education, Pedagogy and Ethics.

Political Science

Professor HIMES.

1. Science of Government.

A American Politics. The subject is pursued on the basis of Johnston's American Politics with comments and suggestions for collateral reading. An intelligent acquaintance with present political conditions is aimed at.

B American Government. The principles and structure of government are studied. National and State constitutions are consulted. The annual Presidential Message is discussed.

Junior course. Two periods throughout the year.

2. Economics and Law.

A Economics. The theories of the science are brought, wherever possible, to the test of the student's personal observa-

tion and the true nature of the science is thus impressed upon mind. Problems for investigation are assigned to the class with instructions to inquire into actual industrial and social conditions and operations.

B International Law. Lawrence's International Law is used, with occasional lectures on special topics.

Senior course. Three periods throughout the year.

Biology and Hygiene

Professor STAHLEY.

Courses 1 to 6 are given during the Junior and Senior years, and are required in Group V, Biology, Chemistry and Physics and are elective for the other groups and for partial course students in other years. The Junior work is a general culture course, and is calculated to give the student a general understanding of current biological questions. The Senior work is more medical in its cast, and in conjunction with the Junior work, provides an admirable preliminary preparation for the study of medicine. Students in Municipal Engineering are required to take Course 7.

The work is carried on by lectures, demonstrations, dissections, written descriptions and drawings, quizzes and frequent stated examinations. There are two well-lighted laboratories, provided with all needed instruments and apparatus.

1. General Biology. This branch acquaints the student with microscopic technique and general laboratory methods, whilst he studies selected types of plants and animals, taken from the lower forms of life. The purpose is to ascertain fundamental facts of structure and life processes, with the significant relationships in the two great kingdoms of organic nature.

First year. Three periods for thirteen weeks.

2. Vertebrate Zoology. Fundamental vertebrate features of structure and function are carefully considered, whilst dissecting type forms, beginning with the lowest vertebrates known, and proceeding through the various classes, culminating with the

Mammals; the latter class claiming special attention. Questions relating to comparative morphology and physiology of vertebrate animals are freely discussed.

First year. Three periods for fifteen weeks.

3. Invertebrate Zoology. Representative types in this great group of animals are dissected. The basal plans in organization, with the varying modifications in form and function, are made subjects of practical study.

First year. Three periods for eight weeks.

4. Human Anatomy and Physiology. Special attention is given to osteology, joints, ligaments and muscles. Tramond's preparations, consisting of real bony joints, with accurately placed artificial ligaments, and Azou's dissectible manikin, provide ample facilities for this part of the work. In this, as in all the branches of the course, physiological processes are constantly discussed.

Second year. Three periods for eighteen weeks.

5. Sanitation and Bacteriology. In this course bacteria are considered both as useful and as disease-producing micro-organisms. The principles of municipal sanitation are discussed in detail. A practical study of the bacteriology of water by the use of pure cultures, is pursued in a laboratory amply equipped to carry on such work. The course is intended for students in Municipal Engineering, as well as for prospective medical students. It is given during the second semester of the Senior year and consists of thirty-six periods, divided between lectures and laboratory work.

6. Histology and Embryology. Mammalian tissues are studied and practical experience in the making of slides is acquired. Entire mounts are made of the chick embryo, as well as mounts of serial sections of the incubating egg to the fifth day of incubation.

Second year. Three periods for twelve weeks.

7. Personal and Public Hygiene. During the first semester

the question of the waste and conservation of individual vitality in its application to an efficient citizenship, are discussed. During the second semester consideration is given to those essential principles of public hygiene which are necessary in protecting the health of communities.

Lectures. One period weekly throughout the year.

8. Physical Culture. This end is sought under medical guidance in the Gymnasium during the winter months. A physical examination of each student is made when he enters college and such kinds of gymnastic exercises are prescribed as seem desirable. The purpose is to encourage the promotion of health and physical vigor as necessary for successful mental application. Since much harm is often done in injudicious physical exercise, special effort is made to advise those who are suffering from defective bodily conditions how they may be helped by hygienic methods and the selection of forms of exercise particularly suited to their case.

Chemistry

Professor BREIDENBAUGH, Mr. STOVER and Mr. DICKSON.

The courses in chemistry are not designed to prepare specialists in any department of the subject, but to give a general training in the science. The successful completion of these courses will prepare the student to enter on post-graduate or professional studies in any leading university, or qualify him for a more successful pursuit of any technical business, or fit him to teach chemistry in secondary schools.

The instructors are in daily attendance during the college term from 8 to 12 and from 1 to 4, except on Saturday afternoons.

1. General Chemistry. No previous acquaintance with the subject is required. Those offering chemistry for admission will be allowed to substitute, as far as is best for the individual, from Course 2. The general principles and the fundamental laws of the science are included in the course which consists of lectures,

readings from approved text-books such as Remsen's *College Chemistry*, Newell's *Inorganic Chemistry for Colleges*, and laboratory work of which careful record in note-books is required. There are daily quizzes and frequent examinations. The last several weeks of the course are devoted to a practical review and examination in the determination of a certain number of substances, based on the results of previous study.

Three lectures and six laboratory hours weekly for one year.

2. *Qualitative Analysis*. The student, following an outline prepared for the purpose, becomes acquainted with the general reactions of the elements of the several groups and from these data constructs the scheme of analysis which is applied in a number of determinations. There is constant supervision and personal conference over the work. Reference book: Fresenius' *Qualitative Analysis*.

Nine laboratory hours including class work weekly for one year.

Prerequisite, 1.

3. *Quantitative Analysis*. While such lectures as are desirable are given, this is essentially a personal laboratory course. An assigned minimum of work is required. Text-book: Fresenius' *Quantitative Analysis*.

Nine hours of laboratory work weekly for one year.

Prerequisite, 1 and 2.

4. *Organic Chemistry*. Lectures and preparations based on Remsen's *Organic Chemistry* occupy about one half the course, the remainder of the time is given to ultimate and proximate analysis of organic substances and of animal and plant products.

Three lectures and six laboratory hours weekly for one year, four units credit.

Prerequisite, 1 and 2.

5. *Water and Sewage*. Lectures, reading and laboratory work in the character of water supplies and sewage products and their purification.

Two periods for one semester as suits the class.

Prerequisite, 1, 2 and 3.

6. Cements. Reading and laboratory work in the nature of cements.

Two periods for one semester as suits.

Prerequisite, 1, 2 and 3.

7. Special Quantitative Methods. Students who are qualified, are offered courses in advanced and applied analysis—such as mineral and ore analysis, the examination of food stuffs, etc.

Such number of hours as may be arranged for during Senior year, or during Junior year by such students as have completed other work in the department.

Geology and Mineralogy

Professor BREIDENBAUGH.

1. Dynamical Geology. This course of lectures gives the student an acquaintance with the facts concerning inorganic geology with a discussion of the dynamical agencies which have been operative in bringing the earth to the condition in which we now find it.

2. Historical Geology. A comprehensive discussion of the principles of evolution with illustrations from historic geology closes the course.

The student is assigned readings from the text-books of Dana, Le Conte and Chamberlin and Salisbury and other authors.

Field work and the preparation of papers from personal observations give practical application to the work. Frequent examinations are held.

Two periods throughout the year.

3. Mineralogy. Following a short course of practical work in Crystallography, there is a series of determinations of not less than one hundred minerals by their physical and blowpipe characteristics.

Two periods throughout the year.

Prerequisite, Chemistry 1.

Mathematics and Astronomy

Professor NIXON and Mr. TROXELL.

The courses in mathematics are arranged to give thorough mental discipline; to meet the needs of teachers; to fill the wants of students desiring later to do graduate work in the best universities; to prepare for engineering or other technical courses. The instruction includes full explanation of all difficult points, free use of blackboard by both instructor and pupil, daily drill and note-book work, checking of results, application of mathematics to practical problems of every day life.

1. Solid Geometry. The usual text demonstrations including the relations of planes and lines in space, the properties and mensuration of prisms, pyramids, cylinders and cones, the sphere and spherical triangle; geometric models. Well's Solid Geometry.

Freshman course. Three periods one third of year.

2. Plane and Spherical Trigonometry. Fundamental definitions, properties and analytical theory of trigonometric functions, with the usual formulae; theory and principles of logarithms; applications to the solution of various practical problems; use of the transit and level. Granville's Plane and Spherical Trigonometry.

Freshman course. Three periods two thirds of year.

3. Advanced Algebra. Undetermined coefficients with applications to series and partial fractions; graphical method of solving equations; determinants with applications to simple equations; the elements of the theory of equations; including the solution of numerical equations by Horner's method. Well's Advanced Algebra.

Sophomore course. Three periods one third of year.

4. Plane Analytic Geometry or Elementary Analysis. The equation and the plotting of the corresponding locus is discussed in general, after which the following topics are studied; line, circle, ellipse, hyperbola, parabola and other curves, their tan-

gents, normals, lengths and areas. Nicholas' *Analytic Geometry*; Granville's *Elementary Analysis*.

Sophomore course. Three periods two thirds of year.

5. *Differential and Integral Calculus*. The latest and best methods of teaching the Calculus are used. This course prepares students for work in applied science, for more advanced courses in pure mathematics, and for engineering or other technical courses. Simple practical problems are given throughout that illustrate the theory and at the same time are of interest to the student. These problems do not presuppose an extended knowledge in any branch of science but are based on knowledge that all students in a first course in the calculus are supposed to have in common. Granville's *Differential and Integral Calculus*.

Junior course. Three periods throughout the year.

6. *Differential Equations*. This course is based on the Calculus of Junior year, and consists of recitations on methods of solution and geometrical interpretation of ordinary and partial differential equations. Cohen's *Differential Equations*.

7. *Solid Analytic Geometry*. This course is based upon the *Analytic Geometry* of Sophomore year, and includes various topics of *Analytic Geometry* of three dimensions. C. Smith's *Solid Geometry*.

8. *Theoretical Mechanics*. This course is based upon the *Calculus* of Junior year, and includes the mathematical treatment of various topics in mechanics. Smith and Longley's *Theoretical Mechanics*.

6, 7 and 8, Senior courses. Three periods throughout the year.

9. *General Astronomy*. This course is designed to meet the needs of students interested in *Astronomy*. Practical work is included but the emphasis is laid upon the theory. The subject matter is the following: determination of time, latitude and longitude from observation with the transit; computing the time of

sunrise, etc., and projecting a lunar eclipse; descriptive Astronomy covering the material contained in Young's General Astronomy.

Senior course. Two periods throughout the year.

Physics

PROFESSOR PARSONS and MR. BAKER.

A Elements of Physics. An elementary course in Physics designed for students who have had no previous work in the subject. The instruction is given by lectures illustrated by experiments, recitations, problems, and laboratory work. No credit will be given in this course to those offering Physics for entrance.

Three lectures and two laboratory hours per week throughout the year. Three and one-half units credit.

[This course will be given during the present year, but may not be offered during 1912-13.]

1. General Physics. Mechanics of Solids and Fluids, Sound, Heat, Electricity and Magnetism, and Light. The instruction is given by lectures illustrated by experiments, recitations and problems assigned for work outside the class. No previous knowledge of the subject is assumed, but a preparatory (or high school) course in Physics is advantageous as preparation.

Three hours per week throughout the year (lectures and recitations). Three units credit.

Prerequisite, Freshman Mathematics.

2. General Laboratory Physics. A laboratory course covering the field of general Physics and intended to accompany Course 1. It is desirable, though not required, that the student should have previously had an elementary laboratory course in Physics. Excepting in special cases, Courses 1 and 2 must be taken together.

Three or five hours per week throughout the year. One or two units credit.

3. Mechanics. This course is an extension of the Mechanics part of Course 1, the emphasis being placed on the physical ideas

as a preparation for the engineering applications. The principles of Statics and of the Dynamics of Translation and Rotation, and the subjects of Elasticity and Periodic Motion are treated. The instruction is given by lectures, text-book work, assigned problems, and laboratory work.

Two hours lecture and class work (3A) and three to six hours laboratory work (3B) per week first semester. One and one-half to two units credit.

Prerequisite, Physics 1 and 2 and Mathematics 4 (Analysis including the elementary calculus).

4. Thermodynamics. An extension of the "Heat" part of Course 1, in which the Thermodynamics of the Steam Engine and other heat engines, and calorimetry and the heat relations of transformations and chemical reactions, are emphasized. The laboratory work will be varied to meet the needs of the individual student.

Two hours lecture and class work (4A) and three to six hours laboratory work (4B) second semester. One and one-half to two units credit.

Prerequisite, same as Physics 3.

5. Medical Physics. A descriptive course, involving relatively little mathematics, consisting of selected topics in Physics of interest to students of Medicine, Chemistry, and general science. The subjects treated include density determinations, diffusion, osmosis, capillarity, calorimetry, heat production in vital processes, electric currents and high potential discharges, ultra violet light, X-rays, and radioactivity, and (continued in Course 6), refraction of light, astigmatism, color, polarized light, and photography.

Two hours lecture and two or three hours laboratory work per week first semester. One or one and one-half units credit.

Prerequisite, Physics 1 and 2.

6. Light. A general course in Light beginning with its historical development. The phenomena of reflection, refraction, interference, diffraction, polarization, etc., are treated from

the standpoint of the wave theory. The subjects of Photography and Optical instruments (including spectrosopes, interferometers and the diffraction grating) are considered in the lecture and laboratory.

Two hours lecture and three or more hours laboratory work per week second semester. One and one-half units credit.

Prerequisite, Physics 1 and 2, and Sophomore Mathematics.

7. Elements of Electrical Engineering. The theory and methods of electrical measurements and testing, the principles of direct current machinery, and the elements of direct and alternating currents are considered in the lectures and the laboratory work.

Three hours lecture and class work and three to six hours laboratory work per week first semester. Two or two and one-half units credit.

Prerequisite, Physics 1 and 2, and Sophomore Mathematics (including the elements of calculus).

8. Alternating Currents and Topics in Electrical Engineering. A continuation of Course 7 in which the theory of Alternating Currents and electric oscillations is treated. Single phase and polyphase currents, alternating generators, synchronous and induction motors and other appliances, long distance power transmission, electric railways, electric lighting, and other topics are briefly treated.

Three hours lecture and class work per week, and laboratory work (amount not specified), second semester.

Prerequisite, Physics 7.

9. Electric Railways and Power Transmission. A course in Electrical Engineering following Courses 7 and 8. Lectures and class work.

Two lectures per week first semester. One unit credit.

Prerequisite, 7 (and preferably 8).

10. Elements of Illuminating Engineering. A course in Electrical Engineering following Course 9, dealing with the subject of electric illuminants and methods of illumination.

Two lectures per week second semester. One unit credit.

Prerequisite, 6 and 7.

11-16. Courses in Advanced Physics. Two (or possibly, in some cases, three) lectures per week for one semester, in each course. With the exception of 12, all are mathematical and require Calculus and Differential Equations. Not more than one or two of the courses 9-16 will be offered in any one semester, and the ones given will vary from year to year.

11. Theoretical Mechanics and Mathematical Physics. An advanced course in the principles of Mechanics including the dynamics of vibrating systems. First semester.

12. Recent Advances in Physics. Radioactivity, Discharge of Electricity through Gases, the Electron Theory and other topics. Lectures, illustrated by experiment.

Two lectures per week second semester. One unit credit.

Prerequisite, Physics 1 and 2 and (elementary) Calculus.

13. Electricity and Magnetism. First semester, or throughout the year.

14. Physical Optics. The mathematical theory of Light, including the Electromagnetic Theory. (This course should follow 13).

Second semester, or throughout the year.

15. Kinetic Theory of Gases.

16. Theory of Sound.

17. Advanced Laboratory Physics. This course may be elected in connection with any of the advanced lecture courses, or separately. The experiments or problems assigned are variable. Credit proportional to the amount of work done. (It may be taken through more than one year).

18. Physical Manipulation. This may be given as a separate laboratory course or parts may be assigned in place of parts of other courses. It comprises the design and construction of

apparatus, soldering, electric wiring and glass blowing, grinding and polishing.

Credit proportional to work done.

Prerequisite, Physics 2.

19. Research on some assigned topic (for candidates for an advanced degree).

Civil Engineering

Professor KIRBY.

This department offers systematically arranged instruction leading to the degree of Bachelor of Science. Students may elect either Civil Engineering, (Group VIII), or Municipal Engineering, (Group IX). See pages 39 and 40.

Attention is called to the fact that the field of Civil Engineering is an increasingly broad one, that Municipal Engineering is but one of its many subdivisions, and that preparation for the successful practice of this or any of the branches of Civil Engineering involves the pursuit of a number of common fundamental studies.

Civil Engineering includes also Topographic, Railroad and Structural Engineering. Students who wish to prepare themselves for work along these lines should take Civil Engineering Course (Group VIII).

The Municipal Engineering (Sanitary Engineering) Course is offered for those who wish to specialize somewhat in subjects relating more particularly to the problems of sanitation and civic betterment with which the engineering department of a modern city is concerned.

The courses have been so planned as to give the student in addition to his vocational training the foundations of a broad education. It is believed that such preparation is to be preferred to a college course entirely devoted to technical subjects, especially in view of the tendency of men trained as engineers to engage in other related callings, as contracting, manufacturing or commerce.

The sequence of technical subjects is such that those that are

comparatively simple and basic lead up to those that are more complex and specialized. It is necessary therefore that students in this department take the course in its entirety. A few of the elementary subjects may be elected by students in other groups whose preparation therefore has been adequate. Special work will be arranged for graduates of this or other colleges.

It is aimed to make the instruction in each subject as practical as is consistent with a broad view of the principles involved. A number of trips are arranged during the course for the inspection of engineering structures in the vicinity, etc. Reports of such visits are prepared by each student from his individual notes. A seminar for the discussion of current engineering topics is designed to afford the student training in the preparation and presentation of written papers and to stimulate his interest in matters pertaining to his chosen profession. A number of the standard engineering periodicals are kept on file for student use and a departmental library is being built up in connection with the library of the college.

SOPHOMORE COURSES.

1. Mechanical Drawing. Elementary principles, orthographic, isometric and cabinet projections; simple sections, intersections and developments; lettering; an introduction to architectural, machine and engineering drafting.

Two periods, first semester. One and one-half units credit.

2. Descriptive Geometry. Problems relating to the point, line and plane in space are followed by those dealing with sections, intersections and developments, with applications to engineering and architecture. The instruction is designed to develop in the student the power of concise reasoning. Text-book, Tracy and North's Descriptive Geometry.

Two periods, second semester. One and one-half units credit.

JUNIOR COURSES.

3 and 4. Elementary Surveying. The field work is done during a period of three weeks immediately preceding the be-

ginning of the Junior year. It consists in drill in the use of the more common surveying instruments, supplemented by recitations held at frequent intervals and designed to co-ordinate the instruction. The remainder of the course consists of calculations and mapping, done during term time. The calculations include those necessary in the ordinary office work of a land surveyor, while the mapping comprises plotting the notes of the survey made during the summer, tracing and blueprinting the map, and additional drill in plain lettering. Text-book Tracy's Plane Surveying.

Three weeks (145 hours) in August and September. One unit credit.

Two periods, first semester. One and one-half units credit.

5. Mechanics. During the first semester this course is carried on in connection with Physics 3, which is essentially a laboratory course, and deals with the elementary conceptions in mechanics. The use of the slide rule is introduced at this point. The remainder of the year is taken up with the analysis of the stresses in framed structures and other forms of engineering construction, with emphasis on graphical solutions. Numerous problems are solved by each student throughout the year. Text-books, Jameson's Elementary Practical Mechanics, Malcolm's Graphic Statics.

Two periods, first semester. Three periods, second semester. Two and one-half units credit.

6. Railroads (A). A course in the mathematics of railroad curves,—simple, compound, and vertical, including switches and spirals; earthwork calculation and the construction of mass diagrams. Instruction is largely by recitation, involving the solution of many practical problems. Text-book, Raymond's Field Geometry.

Three periods, second semester. One and one-half units credit.

7. Cement Testing and Highways. A short laboratory course in which the standard tests of cement and mortar are made and compared, supplemented by lectures on the manufac-

ture and use of cement. Recitations on the design, construction and maintenance of roads and pavements, with especial consideration of the exigencies of present-day traffic. Text-book (Highways), Spaulding's Text-Book on Roads and Pavements.

One period, second semester. One-half unit credit.

SENIOR COURSES.

8 and 9. Advanced Surveying. Topographic surveying, using a variety of methods and instruments, including the plane table. Adjustment of instruments. The office work includes instruction in topographical drafting and the use of topographic maps, also the treatment of various subjects in higher surveying.

Three weeks (145 hours) in August and September. One unit credit.

Two periods, first semester. One unit credit.

10. Hydraulics. A study of the mechanics of water at rest and in motion, with applications to a variety of problems relating to the pressure of water and to its flow in natural and artificial channels, pipes, etc.

Text-book, Russell's Hydraulics.

Three periods, first semester. One and one-half units credit.

11. Structural Design. A course in the strength of materials as applied to the design of structures of steel and of wood. Beginning with simple joists under specified loadings the student finally makes all the calculations necessary in the complete design of a number of bridges and roof trusses of various types. The stability of existing structures is also investigated. This is essentially a course in the mathematics of design and does not include drafting. (See Course 12).

Three periods. Three units credit.

12. Structural Drafting. The making of detail drawings for the component parts of a steel structure. Conformity with

the best practice is required in the notation, and the drawings are carefully checked.

Two periods, second semester. One unit credit.

13. *Masonry.* The design and construction of stone and concrete structures, heavy foundations, arches, walls and dams. Instruction is in part by recitation and includes drafting-room work in the design of several typical structures. Text-book, Baker's *Masonry Construction*.

Two periods, second semester. One unit credit.

14. *Sewerage.* Various types of design and construction are discussed in recitation. Plans for a small sewer system are made by each student. Modern methods for the purification and disposal of sewage and garbage. Visits are made to plants under construction and in use. Text-book, Ogden's *Sewer Construction*; Kinnicutt, Winslow and Pratt's *Sewage Disposal*.

Two periods, second semester. One unit credit.

15. *Water Supply Engineering.* The quantity and quality of water from various sources. Works for the collection and storage of water, for its purification and for its distribution. Text-book, Turneure and Russell's *Public Water Supplies*.

Two periods, second semester. One unit credit.

16. *Railroads (B).* The necessary preliminary surveys are made and a short piece of railroad line is located. (This work is done during the summer course in Advanced Surveying, C. E. 8.) Course 16 includes making the plans, calculations, etc., necessary to prepare a full report on the proposed construction including its cost. The design of yards and terminals. Economics of railroad construction.

Two periods, second semester. One unit credit.

17. *Contracts and Specifications.* The elements of contract law as applied to the mutual relations of engineer, contractor and owner. Critical review of typical specifications, and practice in specification writing. Text-book, Tucker's *Contracts in Engineering*.

One period, second semester. One-half unit credit.

GENERAL INFORMATION

Government

The College aims to develop the individual manhood of the student. The prevailing influences are such as lead young men to an active Christian life and to realize their personal responsibilities in the community. The immediate supervision of the students is in the hands of the President and Dean with the class officers.

Class Officers

A professor is appointed as class officer for each class. The members of the class present any request to the Faculty through their class officer and confer with him in personal matters or concerning college affairs.

Student Group Advisers

The head of each department acts as adviser to those students having a major in his department. He has oversight in the selection of electives and in the general character of the work of the student.

Student Council

Without lessening their authority and responsibility, the Faculty have delegated certain duties in government to the student body as a trial of self-government. The students act through a student council of four Seniors, three Juniors, two Sophomores and one Freshman, elected by their respective classes. The council acts in certain matters of discipline, and in matters concerning the general welfare of the student body is a medium of communication between the students and the Faculty.

Terms and Vacations

The college year of about thirty-six weeks is divided into two equal parts. The first semester begins at 8 A. M. on the second Wednesday in September and continues, with recesses at Thanksgiving and Christmas, to the first Friday of February; the second

semester begins on the same Friday and continues, with an Easter recess, to Commencement Day, the second Wednesday of June. The closing days of each semester are devoted to examinations.

Attendance

Each student, not residing with his parents, is required to attend on week days a prayer service at 7.40 A. M., in Brua Chapel. On the Lord's Day attendance is required at the morning service in the College Church. Those affiliated with other denominations are, on request of their parents, granted permission to attend elsewhere. Ten per cent. absences are allowed from prayers and church under the rules governing absence from class work.

Each student is allowed individually ten (10) per cent. absences from class-room work in each subject. This allowance, is expected to cover all ordinary absences. Fractions are not counted, and absences can not exceed four in any subject during a single semester. These absences are not allowed for the two days preceding nor for the two days following any recess. Absences are not allowed for announced examinations. Such absences can be excused only by action of the Faculty and the substitute examination will be held at such time as the instructor shall appoint. When absent from topical examinations or quizzes the student shall have an examination or quiz at such time as the instructor shall appoint. Unexcused absences count as zero on grade, and if these absences exceed the ten per cent. allowance the student shall take such special examination as the instructor shall direct. A further allowance of absences may be granted to members of athletic teams, musical organizations, participants in literary contests, and to representatives of literary societies for the purpose of attending conventions.

Electives

A student having electives must deposit with the Registrar, within the first two days of the year, a written list of his electives, bearing the endorsement of the student's Group Adviser

and of the instructors concerned. After the first week of the year changes in electives can be made only when approved by the Faculty, under such conditions as may be determined in each case.

Examinations

Examinations are held in all subjects at the close of each semester or when, during the term, a subject is completed. Instructors can hold topical or quiz examinations at the time of any of the regular appointments with the class. Absences from these examinations are governed by the rules given above.

Conditions and Deficiencies

Freshman entrance conditions must be satisfied by the beginning of the Sophomore year.

A student failing in the class work of any semester, in any course, must satisfy the work in such manner and at such time as may be required by the instructor, provided this be done before the close of the next semester.

A student failing in an examination at the end of a semester or on the finishing of any subject, is required to take a second examination at a date appointed by the instructor within the first two weeks of the next semester.

A student who at the beginning of any college year continues deficient in more than one-third of a year's work will be enrolled with the class in which the deficiency occurs.

A student deficient at the beginning of a year in courses aggregating six units will be required to drop a corresponding number of units in the regular work of the year.

Records

A record of scholarship and deportment, under the care of the Registrar, is kept for each student. The records for scholarship range from A signifying "excellent" to F signifying "required to repeat the course."

The student begins each semester with a deportment grade of 100. Deductions are made from this at the end of each semester.

Unexcused absences count: from church 5, from prayers 2, from recitation 2, from gymnasium 2.

Reports

A copy of the above record is sent to the parents or other proper parties at the end of each semester.

Requirements for Graduation

Each student completing the prescribed subjects of any group of studies and such number of electives as will aggregate at least sixty-four units, with the prescribed work in composition and speaking and in physical culture, will receive the degree pertaining to that group, either Bachelor of Arts or Bachelor of Science. Provided, however, that no student in any year shall maintain less than fifteen units per week.

No student will be graduated who is not present at Commencement unless he be excused by the Faculty.

Certificates

Partial and special course students or those withdrawing before the completion of a full course of study are entitled to a certificate giving a copy of the college record.

Master's Degree

Beginning with 1911-12 the degrees of Master of Arts and Master of Science are conferred on those having the corresponding Bachelor's degree according to the following regulations:

The Master's degree may be conferred upon resident graduates of at least one year's standing who have obtained the baccalaureate degree of this college or of any college of equal grade. Such students must present to the Faculty Committee on Advanced Degrees, for approval, a plan of advanced studies involving the equivalent of twelve units per week. It is recommended that at least one-half of the course be devoted to some one subject.

The Master's degree is also offered to non-resident graduates of this college of three years' standing or more. These must,

however, at the beginning of their candidacy arrange with the Faculty Committee on Advanced Degrees a systematic course of study, and must report annually to the head of the department in which the subjects have been chosen.

In order to obtain the degree the candidate must pass examinations satisfactory to his instructors and to the committee. Previous to the final examinations the instructors in charge shall file with the committee a statement of the work done by the candidate. If the report is satisfactory the candidate will be permitted to present himself for final examination. He shall also be required to prepare a paper upon an approved subject bearing on his principal study. Such paper must be completed and submitted to the committee at least one month prior to the commencement on which the degree is to be conferred; if accepted, it becomes the property of the college.

Graduates of this college who have devoted at least one year to graduate work in residence at other colleges or universities and have fulfilled the above requirements may be admitted by the Faculty to the Master's degree. It may also be conferred upon graduates who have completed a course of advanced study in professional schools. Provided that the work done be in kind, grade, and amount equivalent to that required of other candidates and it has not been offered in fulfillment of the requirements for a professional degree.

Honors

The following honors will be awarded at the close of each year:

A Final Honors will be awarded to members of the graduating class meeting the following conditions:

General Final Highest Honors will be awarded those students who have maintained during the four years the grade A in all of their studies.

General Final Honors will be awarded to those students who have maintained the grade A in at least half of the units of their four years and have not fallen below the grade B in their other studies.

Students entering at the beginning of Sophomore year will be awarded the same honors if they meet the above requirements for three years.

B. Department Final Honors. The head of any department recommending a student taking a major in that department as having shown special excellence in his work, the student, not having grade below B in more than three courses in other departments, shall be awarded Final Honors in that department.

C Class Honors for Freshman, Sophomore, Junior and Senior Years. Highest Honors for the designated year will be awarded those members of the class who have maintained the grade A in all their studies for the year.

Class Honors for the designated year will be awarded those members of the class who have maintained the grade A in at least half of the units of the year and have grade below B in none of their studies for the year.

These awards shall be announced at Commencement and published in the next BULLETIN.

Prizes

Muhlenberg Freshman Prize. The interest of a fund of five hundred dollars, contributed by F. A. Muhlenberg, D.D., LL.D., a former Professor in this college, is given at the close of the year to that member of the Freshman class who is found to have attained the highest degree of scholarship in the Greek and Latin group of studies.

Baum Mathematical Prize. Charles Baum, M.D., Ph.D., Class of 1874, of Philadelphia, has contributed five hundred dollars, the income from which is to be given annually to that member of the Sophomore class who shows the greatest proficiency in Mathematics.

Hassler Latin Prize. Mr. Charles W. Hassler furnished a fund, the interest of which is annually expended for the purchase of a Gold Medal, to be presented to the student of the

Junior class, who, at the end of the year, shall be rated as the best Latin scholar.

Reddig Oratorical Prize. Mr. Clarence Jacob Reddig, class of 1877, of Shippensburg, contributes annually the sum of twenty-five dollars as an Oratorical Prize, to be contended for in public by the Junior class, on Tuesday of Commencement Week.

Pittsburg Prize in Chemistry. The Pittsburg-Gettysburg Club has established a prize of \$25, to be given to the student who does the best work in Chemistry during the Junior year in those groups in which Chemistry is a major.

Graeff Prize. This prize was founded by Mr. John E. Graeff, class of 1843. The sum of thirty dollars is awarded for the best English Essay from the Senior class, on a subject previously assigned. The decision is made by a committee appointed by the Professor of English Literature.

Prizes in Debate. The Literary Societies of the college provide three prizes of \$36, \$24 and \$15, respectively, for the encouragement of skill in debating. The first contest takes place about the middle of November between teams chosen by the Sophomore and Freshman classes, respectively, and the winning team is rewarded with \$15. The second contest between the winning team and a team from the Junior class, takes place about the middle of March, with \$24 to the winners. The third contest, between the second victors and a team from the Senior class takes place about the middle of May, with a reward of \$36 to the winners. Winners of the first prize are excluded from further competition.

Bloomhardt Mercury Prizes. Dr. Fred H. Bloomhardt, class of 1894, of Altoona, Pa., offers \$25 annually to be devoted in prizes to the encouragement of writing for "The Mercury," the College literary journal.

Snyder Prize. Rev. G. F. Snyder, class of 1891, gives annually twenty-five dollars in prizes to be contested for by members of the Senior class in a contest on the general subject of the

“Applications of Christianity to Social Problems.” The particular topic to be assigned or approved by the Professor of Philosophy. The orations shall be submitted to the judges and graded and the writers of the six receiving the highest grades shall deliver them at a public contest on or about the last Thursday in March when another committee of judges shall grade them in delivery. The prizes, fifteen and ten dollars respectively, shall be awarded on the basis of the average grades.”

Students in partial or special courses are not admitted to competition for any of the foregoing prizes.

Scholarships and Aid for Students

The college has several scholarships used in partial payment of the fees of students requiring this assistance. There are a number of permanent scholarships, covering tuition fees, endowed by and controlled by congregations, synods or individuals. The Gettysburg School Board controls a scholarship established by C. W. Thompson, Esq., of Lancaster, Pa.

A few students can earn part of their fees by doing work in the college class rooms and buildings.

The children of clergymen pay half of the tuition and of the general fees.

Treasurer's Bills

The bills of the College Treasurer are made out for each semester and include half of each college item.

A discount of five (5) per cent. is allowed on all dues paid within six weeks of the opening of each semester.

No student shall be graduated until all financial obligations to the college and for class publications and other student interests are settled, except when a student has registered a timely protest with the Faculty and the claim for relief has been allowed.

Expenses

The expenses of a college student depend on the training and

habits of the individual. The following statement indicates the range for certain fixed charges:

| College Items. | Low. | Moderate. | Liberal. |
|--------------------------------|----------|-----------|----------|
| Tuition | \$30.00 | \$30.00 | \$30.00 |
| General fees | 50.00 | 50.00 | 50.00 |
| Library fee | 1.50 | 1.50 | 1.50 |
| Athletic fee | 6.00 | 6.00 | 6.00 |
| Room rent and heat (half room) | 15.00 | 40.00 | 70.00 |
| Board for 36 weeks | 95.00 | 108.00 | 126.00 |
| Laundry | 15.00 | 18.00 | 20.00 |
| | <hr/> | <hr/> | <hr/> |
| | \$212.50 | 253.50 | \$303.50 |

Books, stationery and room furnishings are very variable items.

An incidental fee of \$2.50 per semester is charged to students not residing in the college dormitories.

Beginning with 1910 a registration fee of \$5.00 is paid by all students on entrance. Those not having paid this fee will in the second semester of Senior year pay a graduation fee of five dollars.

The athletic fee contributes to expenses incurred in physical training and gives free admission to all intercollegiate games at Gettysburg.

The fee for the course for the Master's degree is \$80.00, when all the instruction required has been given by members of our college faculty, of which \$25 is a registration fee and the balance is due one month before the conferring of the degree.

Laboratory Fees

The annual fees based on three laboratory periods per week are:

| | |
|---|---------|
| Biological laboratory | \$14.00 |
| Chemical laboratory | 18.00 |
| Physical laboratory | 12.00 |
| Mineralogy for the course | 3.00 |
| Annual fees for Junior and Senior years in Engineering courses | 12.00 |

In addition to the chemical laboratory fee a charge is made for apparatus broken or not returned in good condition. In the physical laboratory a charge is made for material used and damage to apparatus.

Rooms and Heating

The following rules govern the assignment of rooms in the college dormitories:

All rooms shall be declared vacant on May 1st of each year. Students desiring to remain in the rooms they have been occupying shall have that right provided they make written application to the Registrar during the first week of May. During the second week of May all rooms not reserved in this manner shall be assigned to the members of the several classes beginning with the Junior class. The order of the choice in the classes shall be determined by lot conducted by the Registrar and the President of the Student Council.

Students are not allowed to change rooms during term time except by special arrangement with the Registrar.

The full annual rental, including heating, is given below for each room in the dormitories, occupants dividing the rental. Not more than two persons are allowed to occupy one room or suite—except in several of the larger suites. In Pennsylvania Hall the designations are E. for east division, M. for middle division, and W. for west division. S. indicates South College Hall.

\$18.00: 4, 6 W; 4, 6, 8 E.

\$20.00: 5, 7 W; 5, 7, 9 E.

\$23.00: 1, 3 W; 1, 3 E.

\$32.00: 3, 4, 5 M.

\$34.00: 2 W; 36 S.

\$35.00: X S.

\$38.00: 14, 15, 16, 17, 18, 19, 24, 25, 26, 27, 28, 29, 34, 35, 36, 37, 38, 39 E; 6, 11, 16 M; 12, 13, 14, 15, 20, 21, 22, 23, 28, 29, 30, 31 W.

\$44.00: 22, 23, 24, 25, 30, 31, 32, 33 S.

\$48.00: 10, 11, 12, 13, 20, 21, 22, 23, 30, 31, 32, 33 E; 8, 9, 10, 11, 16, 17, 18, 19, 24, 25, 26, 27 W.

\$49.50: 26, 27, 28, 29 S.

\$50.00: 9 M.

\$55.00: 20, 21, 34, 35 S.

\$60.00: 8, 10, 12, 14, 18, 20 M.

\$80.00: 17 and 19 M; 21 and 22 M. (Suites of two rooms).

\$82.50: 1, 2, 3, 4, 5, 6, 7, 8 S.

\$95.00: 10 and 12, 11 and 13, 15 and 17, 16 and 18 S. (Suites of two).

\$140.00: 9, 19 S. (Suits of three rooms).

Rooms 3, 4, 5, 8, 10, 12, 14, 18 and 20 M include a large study and a good-sized bed-room. Even numbers in Pennsylvania Hall except 22, are on the north side of the building.

The actual cost of the electric lighting of each room is charged to the students occupying same.



MATERIAL EQUIPMENT

Libraries

The College Library contains over 18,750 volumes, besides numerous unbound pamphlets. It is a regular depository of the United States Government and the Government of the State of Pennsylvania. Several hundred volumes of public documents are annually received from these sources.

The Library is available, without charge, to all students under established regulations. During term time it is open for consultation and the drawing of books four hours each week day, except on Saturday, when it is open for two hours. The librarian and his assistant are always ready to give aid to students. It is intended to further increase the opportunities for the use of the library and to enhance its general usefulness by means of a systematic organization and the building up of a complete and attractive library of reference.

The income of a fund invested for the purpose provides for needed additions.

In view of the great expense involved in the purchase of even the most necessary works in science and literature, the generous aid of the alumni and friends of the college is especially invited to the increase of this fund and to give money for the establishment of new funds.

In the same hall with the College Library are the Libraries of the Literary Societies. They comprise a large number of well selected and standard volumes, which are annually increased through the income of separate funds. The Philomathean Library contains at present over 6,850 volumes; the Phrenakosmian Library over 6,050 volumes. These libraries are accessible to the members of the societies under their respective regulations, and are open for the issue of books on Wednesday at 4 P. M., and Saturday at 10 A. M., during term time.

Reading Room

The Reading Room is well supplied with daily and weekly papers and leading literary and scientific periodicals, thus enabling the student to become acquainted with current events and contemporary, scientific, literary and other cultural movements. An annual fee of \$1.50 is charged to each student toward its maintenance.

Laboratories

The Biological Laboratories on the second floor of Recitation Hall, consist of two large well-lighted communicating rooms. They are supplied with twenty-five fine microscopes and all the appliances necessary in carrying on the work of the course outlined in the department of biology.

The Chemical Laboratories in the Chemical Laboratory Building, as described on page 81, are amply equipped with all the conveniences and apparatus and supplies that are desirable in the requirements for general and analytical chemistry, including work in organic preparations, proximate analysis, examination of water and other special subjects.

The Physical Laboratory. The lecture room is provided with a large table with sink, water, gas, and electrical connections; apparatus supports, blackboard, charts, black curtains, and a hand-painted screen for stereopticon work. The laboratories, comprising four rooms for general work, besides photographic dark room, store room and storage battery room, and the lecture apparatus room are equipped with modern and carefully selected apparatus for both elementary and advanced work. Alternating and direct electric current is supplied at different points by means of a central switch board, a motor generator and storage battery. The apparatus includes a Geryk double cylinder oil immersion air pump, high grade balances, apparatus illustrating mechanical principles and elastic constants, moments of inertia and harmonic motion, a spectrometer, photometer, and stereopticon; and in electricity, D'Arsonval galvanometers, Wheatstone

bridges, potentiometer, voltameter, tangent galvanometer, standards of resistance, capacity, electromotive force and self-induction, ammeters and voltmeters for direct and alternating current (all of the best German or American make); a complete dynamo and motor set illustrating different styles of direct and alternating current machines (induction, synchronous, three phase, etc.); an induction coil giving an 8 inch spark, high frequency coils, electric wave apparatus, and telegraph, telephone, and wireless telegraph outfits, and Kathode ray and X-ray tubes.

The equipment in the department of Civil Engineering is modern and adequate and is being augmented as necessity demands.

Museum

The Museum contains varied collections of fauna and flora and minerals, all of which are freely used in instruction. The Mineralogical Cabinet contains over 6,000 specimens, including not only very full suites of the more common and more important minerals but also good specimens of many of the rarer minerals. The collection in Lithology numbering 3,000 specimens, and of iron in Metallurgy, have, by recent additions, become fairly representative in the most important departments of these sciences. The Botanical collection of 6,000 specimens, mainly presented by Miss Elizabeth C. Morris, of Germantown, Pa., is well arranged and contains a full representation of American Flora. A beginning has been made of a Chemical Museum—to contain specimens of raw and manufactured materials in chemical industries. Friends of our institution can greatly aid us by making additions to these collections.

Buildings

Pennsylvania Hall, erected in 1836-38, was remodeled and improved in 1889. It contains eighty-six rooms for students, many of them *en suite*, so that those who may wish to do so can have separate study and sleeping rooms. In this building are the reading rooms of the Literary Societies and the large room

used by the College Y. M. C. A. These rooms are heated by steam, lighted by electricity, and water pipes and lavatories connected with the college system of water works are on the first and second floors.

South College, erected in 1897, is a building of three stories containing rooms for about fifty students. It is finished entirely in hard wood, is heated with steam, lighted by electricity, has hot and cold water on each floor and lavatories in convenient places. The first floor has eight rooms, each with open fire place, tile hearth and spacious closets. These rooms may be used by one or two occupants, as preferred. On the second floor all rooms are *en suite*, each suite consisting of a study with one bed-room or two. These are also provided with hearths, closets, etc. The third floor is divided into sixteen single rooms.

Glatfelter Hall, erected in 1888-89, is used for general college purposes. On the first floor are the library room and office, the President's and Registrar's offices and recitation rooms. The second floor has recitation rooms. The large museum room is on the third floor. In the north wing is the hall of the Philomathean Society, in the south wing the hall of the Phrenakosmian Society. In the basement are the laboratories of the Department of Physics with the recitation rooms directly above. The Civil Engineering Department occupies two rooms in this building.

The Brua Memorial Chapel, erected in 1889-90, is the gift of the late Col. John P. Brua, U. S. A., as a memorial to his parents. This building is used for morning prayers, for Commencement exercises, lectures and other occasions requiring a large audience room.

The Chemical Laboratory is a frame building, erected in 1872 and in 1890 converted to its present use. It contains on one floor a large lecture room, an office, store-rooms, chemical-room, balance-room, and two laboratories—providing for one hundred and twelve persons working individually. The building is fitted with the most approved appliances; gas and water at

each desk; there are ample hoods, a water-distilling apparatus and large sand bath, and other necessary apparatus. The balance-room contains balances set on pillars especially built for purpose. In the basement and in the attic are store-rooms.

The Astronomical Observatory, erected in 1875, is furnished with an achromatic telescope, having an object glass of six and one-half inches, with a transit instrument, chronometer and other appliances.

The Gymnasium has on the first floor ample dressing rooms and bathing facilities, and a baseball cage. On the second, or main floor, a class of sixty members can be accommodated for gymnastic drill. The selection of specialized apparatus in light and heavy gymnastics is varied and complete. The Professor's office where all physical tests and measurements are taken, is also on this floor, and is furnished with a full set of anthropometric apparatus.

On the gallery there is a first-class Roberts' patent running track with seating accommodations for visitors.

The gymnasium is open at stated times every afternoon and evening and Saturday all day, aggregating twenty-four hours each week, apportioned between regular class practice and general practice.

The Boiler House supplies the steam required for heating all the college buildings and baths.

Nixon Athletic Field. Immediately north of the college buildings is the athletic field, which is carefully graded and securely inclosed and covers an area of over seven acres. It affords room and facilitates for all kinds of out-door sports. Recently the Blough running track has been built.

Besides these buildings there are on the campus the President's house, a double house for professors, and four halls erected by Greek Letter Societies.

STUDENTS' INTERESTS

Literary Societies

Two literary societies are connected with the college, the Philomathean and the Phrenakosmian. These exert a favorable influence in the intellectual and social culture of their members. The exercises consist of essays, orations, debates and music. The practical acquaintance with parliamentary law here formed makes these societies excellent schools for free citizenship. The halls occupy two wings on the third story of the Recitation Hall, and are conveniently and handsomely furnished. Their sessions are held every Friday evening. Every student should become an active member in one of these societies.

Debates and Oratorical Contests

During the year there are debates between teams representing the different classes, also between teams of the literary societies. The college is also represented in the Intercollegiate Oratorical Union, being associated with Franklin and Marshall, Ursinus, Muhlenburg and Swarthmore in an annual oratorical contest.

Y. M. C. A.

The Young Men's Christian Association of the college is an active agent in promoting religious interests among the students. Each Sunday morning and Thursday evening a public meeting is held addressed by invited guests or students. Various Bible classes are organized in college classes, fraternity and other special groups. The Y. M. C. A. Student Secretary has general direction and co-operates with the officers and committees of the association.

Lectures

A series of public lectures will be delivered each year by members of the Faculty and others prominent in some field of general interest.

The Y. M. C. A. conduct, at very reasonable cost, a series of interesting lectures and musical entertainments.

Occasional lectures or addresses by prominent men are delivered before the student body.

Musical Organizations

Active and well trained choral and instrumental musical organizations consisting of a band, an orchestra, a guitar and mandolin club, and a glee club, add to the pleasure of their members and of the audience at their public exhibitions. These clubs usually take a week's trip during the spring of each year.

Athletics

The various college athletic sports, football, baseball, basketball, and field sports are well organized. They are recognized as an important part of college life and receive encouragement, but under such regulations as it is believed will prevent them from becoming a possible source of demoralization to the student or interfering with the primary work of the institution. The plan under which these sports are conducted gives the opportunity and encourages every student to regularly take part in some out-door exercise.

Students are permitted to participate in any or all branches of athletics unless parents or guardians have notified the Faculty to the contrary.

Press Club

The Press Club successfully places the various interests of the college before the public through the daily papers.

Publications

THE PENNSYLVANIA COLLEGE BULLETIN is published four times during the year. The February issue is the Announcement Number, the May issue is the Annual Catalogue, the October issue contains the Reports of the President and Treasurer, the December number is the Alumni Number.

"The College Mercury," published monthly during term time, under the control of the Literary Societies, is a literary journal

sustained by the contributions of students and alumni. "The Gettysburgian," under the private control of students, is published weekly and makes a specialty of college and alumni news. "The Y. M. C. A. Hand-Book," issued at the opening of each college year, gives valuable information and suggestions to incoming students. "The Spectrum," an annual publication of the Junior class, contains pictorial representations of the college with its various organizations and surroundings as well as useful statistics about students and alumni.

All the periodicals aim at enlarging the means of communication between the college and its graduates, former students and friends. These enterprises are cordially commended to the patronage of those interested in the welfare of the institution.

ADDRESSES OF ALUMNI


The College is anxious to keep in touch with its alumni and ex-students not graduates, and requests that any changes in addresses should be sent to the Registrar.

TEACHERS

The attention of school-boards and others desiring teachers is called to the fact that it is frequently in the power of the Faculty to recommend suitable candidates. Many graduates fill successfully important positions in public and private institutions. The college course is arranged to meet the requirements of the School Code of Pennsylvania, thus securing the State Certificate. See page 58.

FORM OF BEQUEST

I give, bequeath and devise to "The Trustees of Pennsylvania College, of Gettysburg, in the County of Adams," in the State of Pennsylvania, and their successors and assigns forever, the sum of ————— (or shares in the bank of —————, or any other personal property or real estate, as the case may be), to be applied to the Endowment Fund of the Institution.

 A bequest to a benevolent corporation, to be legal, must be made at least 30 days before the death of the Testator, in

Pennsylvania, and 60 days in New York, and should be signed by two witnesses.

GENERAL ALUMNI ASSOCIATION

The Alumni Association of Pennsylvania College holds its regular annual meeting Wednesday afternoon of Commencement Week. In 1876 the Board of Trustees granted the Association the privilege of nominating six of their number to membership in the Board, and of maintaining this number as vacancies occur.

The officers of the association are:

President:

Charles S. Duncan, Esq., '82Gettysburg, Pa.

Vice Presidents:

Charles J. Fite, '98Pittsburgh, Pa.

Prof. Charles H. Huber, '92Gettysburg, Pa.

Hiram H. Keller, Esq., '01.....Doylestown, Pa.

Secretary:

Clyde B. Stover, '94Gettysburg, Pa.

Treasurer:

H. C. Picking, '79.....Gettysburg, Pa.

DISTRICT ALUMNI ASSOCIATIONS

The various district alumni associations are active and potential factors in promoting the interests of the college and bringing the college to the notice of prospective students.

STEVENS HALL, GETTYSBURG ACADEMY

PREPARATORY DEPARTMENT

OF

PENNSYLVANIA COLLEGE

INSTRUCTORS

WILLIAM ANTHONY GRANVILLE, PH.D., LL.D. 3 College Campus
President

REV. CHARLES HENRY HUBER, A.M. 411 Carlisle St.
Principal and Professor of Latin and English

GEORGE MICHAEL RICE, A.M. 42 Stevens Hall
Vice Principal and Instructor in German and History

J. GROVER CLEVELAND KNIPPLE, A.B. 16 Stevens Hall
Instructor in Greek and English

JOHN ROGERS MUSSELMAN, A.B. 23 Stevens Hall
Instructor in Mathematics and Science

MISS MARY HAY HIMES, A.M. 130 Carlisle St
Preceptress

STEVENS HALL

Aim of the Department

Stevens Hall is located within two minutes' walk of Pennsylvania College. The object of its foundation, which the school has steadily kept in view, was to maintain for our public an Academy under the control of College Authorities. The advantages of such a combination are obvious. To students who desire to prepare for college it offers a course of preparatory instruction under the eyes of their future professors and in the line of college requirements. The school, being open at all times to visits from instructors in the College, and receiving from time to time their counsel, is able to give to those students who desire it just that preparatory study and drill which will lead to the most profitable and creditable work in the college classes. Time is concentrated upon the studies in which it is needed, and students who have satisfied the requirements in the Preparatory Department are admitted to the Freshman class of the College upon the Principal's recommendation without further examination. On the other hand, students who do not expect to enter College, and who desire only an English education, preparatory to business, teaching, etc., find in this school an academy of high grade under the supervision of college professors in a college atmosphere, and with free access to the college libraries. Near association with a college is a stimulus to study, and often awakens a desire for a higher education.

Government

The Preparatory Department, though under the control of the College authorities, has a separate building and campus of its own and is under the special direction of a Principal who is aided by a Vice Principal, two Instructors and a Preceptress.

The school seeks to develop intelligent Christian gentlemen. The discipline aims at making the pupil self-governing, and leading him to habits of self-respect and self-control by train-

ing the judgment, quickening the conscience, and cultivating a delicate sense of honor.

When it is evident that a pupil has no proper appreciation of his opportunities, and is harming the school rather than receiving benefit from it, his parents are asked to remove him.

During study hours students are expected to be in their rooms, which are subject to frequent visits by instructors.

Admission

Students are admitted at any time to the grade for which they have been qualified by previous study. But it is highly important that the student enter the school as early in the course as possible. With the present requirements for admission, a hurried preparation is generally unwise and tends to retard the student's future progress, especially in Latin and Greek. Accurate scholarship, at which the school aims, can hardly be secured without long drill, especially in the languages. Without intending at all to discourage those whose circumstances, rather than their desire, lead them to attempt short preparation, all who can are urged to lay the foundation carefully. An additional year at the beginning is always a gain because of the ease and thoroughness with which future work is done. The fact, however, is recognized that students differ widely in ability and industry, and every opportunity is afforded those who can do so to cover the required work in the shortest possible time.

No examinations are required for admission, the pupil being at once assigned to the class for which his previous studies seem to have fitted him. If, upon trial, it be found that a mistake has been made, the Principal reserves the right to transfer the student to the proper grade.

Students who have advanced sufficiently in Mathematics and the English branches to enter the Freshman class, but have not studied Latin, Greek or German will here find special arrangements made for their rapid advancement. Girls will be received as day scholars. A study hall has been reserved for their exclusive use and they are not obliged to mingle with the general class

except at regular recitation periods. When at school they are under the care of a Preceptress. Refined homes for them can be secured in town at moderate rates. They will be under the care of the Principal, who is fully informed of their conduct.

Religious Exercises

On Sunday morning the students of the Preparatory Department are required to attend worship with the college instructors and students in the College Church, or such other place of worship as their parents or guardians may designate. A Bible class is conducted by the Principal every Sunday morning and is a part of the regular course of study. Chapel service is held every morning except Saturday.

Courses of Study

The courses of study are designed to prepare students of either sex, who desire to enter College, for the Freshman class, and to give students who do not expect to enter College, so far as it can carry them, a wide intelligence, true culture, and habits of careful study and sound thinking. New and important subjects have been added, and increased attention is given to the lower classes. All students of the school have free access to the College Library, and students over fifteen years of age may join either of the College Literary Societies. There is also a Literary Society conducted by the students of the Preparatory Department.

Arrangements for instruction in music at moderate terms may be made in town without conflicting with regular school work.

A report of the work and conduct of each student is sent home at the end of each semester, and at any other time upon request or when the Principal thinks it desirable.

There are two courses, the Classical (with Greek), and the Scientific or Academic (with German and Physics).

The subjects taught are as follows:

CLASSICAL COURSE

Sub-Freshman Class

Periods per week:

5. Latin. Six books of the Aeneid; Prose Composition.
5. Greek. Three books of the Iliad; Prose Composition.
5. Mathematics. Plane Geometry (Wells).
2. English. College Entrance Requirements as arranged by the "National Conference on Uniform Entrance"; Exercises in English (Buehler).
2. History. Grecian History (Myers); Roman History (Myers).
1. Composition. (Wooley's Hand-Book).
1. Physical Culture.

Upper Middle Class

5. *Latin. Six of Cicero's Orations; Prose Composition; Caesar (Completed).
4. *Greek. Four books of Xenophon's Anabasis; Prose Composition.
5. Mathematics. Algebra Completed (Wells).
2. English. College Entrance Requirements.
2. History. English and French History (Montgomery).
1. Composition and Declamation.
1. Physical Culture.

Lower Middle Class

5. Latin. Comstock's First Latin Book, Second Year Latin with Caesar.
4. Greek. White's First Greek Book with Readings.
4. Mathematics. Arithmetic Completed (Wentworth); Algebra (Wells).
4. English. Grammar (Buehler); College Entrance Requirements.
2. History. United States (Montgomery).
1. Composition and Declamation.
1. Physical Culture.

* Special beginners' classes will be organized this year for students having advanced preparation in other subjects.

Junior Class

4. Latin. Comstock's First Latin Book.
4. Mathematics. Arithmetic (Wentworth).
4. English. Modern English Grammar (Buehler).
3. English. College Entrance Requirements.
4. History and Geography.
1. Composition.
1. Physical Culture.

Spelling is required with the English courses in the four classes.

LATIN SCIENTIFIC COURSE

 Sub-Freshman Class

Periods per week.

5. Latin. Six books of the Aeneid; Prose Composition.
3. Physics.
3. German. Grammar; Prose Composition; Reading.
5. Mathematics. Plane Geometry (Wells).
2. English. College Entrance Requirements as arranged by the "National Conference on Uniform Entrance": Exercises in English (Buehler).
2. History. Grecian History (Myers); Roman History (Myers).
1. Composition. (Wooley's Hand-Book).
1. Physical Culture.

Upper Middle Class

5. *Latin. Six of Cicero's Orations; Prose Composition; Caesar Completed.
4. *German. Vos's Essentials and Reading.
5. Mathematics. Algebra Completed (Wells).
2. English. College Entrance Requirements.
2. History. English and French History (Montgomery).
1. Composition and Declamation.
1. Physical Culture.

* Special beginners' classes will be organized this year for students having advanced preparation in other subjects.

Lower Middle Class

5. Latin. Comstock's First Latin Book; Second Year Latin with Caesar.
4. German. Vos's Essentials.
4. Mathematics. Arithmetic Completed (Wentworth); Algebra (Wells).
4. English. Grammar (Buehler); College Entrance Requirements.
2. History. United States (Montgomery).
1. Composition and Declamation.
1. Physical Culture.

Junior Class

4. Latin. Comstock's First Latin Book.
4. Mathematics. Arithmetic (Wentworth).
4. English. Modern English Grammar (Buehler).
3. English. College Entrance Requirements.
4. History and Geography.
1. Composition.
1. Physical Culture.

Spelling is required with the English courses in the four classes.

Business

A course of instruction is given in Book-keeping when desired. This course is intended to fit young men for a business career.

Physical Exercise

The building is surrounded with large and pleasant grounds adapted to football, baseball, tennis and other out-door sports; and in addition to this the students enjoy all the privileges and instruction of the College Gymnasium.

Buildings and Rooms

The building, located on a slight eminence north of town, is heated throughout by steam, and supplied with pure artesian water. A comfortable toilet room has been placed on the first

floor. The rooms on the third floor are now arranged *en suite* with a broad archway separating the study and sleeping apartments. On the second floor the rooms are separate.

The rooms are furnished with heavy oak wardrobes, bookcases, washstands, tables and chairs. Iron enameled beds, complete with springs and mattresses, are also provided. Two students occupy two rooms, one for studying, the other for sleeping. The rooms are furnished with two single bedsteads, mattresses, chairs, table, bookcase, clothes closet, window curtains and washstand. The other articles needed for the rooms, and to be furnished by the occupants, are as follows: Washbowl and pitcher, mirror, lamp, oil can, slop pail, and carpet. The carpet for the third floor study room is $10\frac{1}{2}$ by $10\frac{1}{2}$, sleeping room $10\frac{1}{2}$ by 11, for a second floor study room 10 by $12\frac{1}{2}$. Each student must also be provided with towels, three sheets for single bed, two pillow slips, a spread, comforts and blankets, and feather pillow.

Expenses

| | First Semester | Second Semester |
|---|-------------------|--------------------|
| Tuition | \$15.00 | \$15.00 |
| General fees | 17.00 | 17.00 |
| Room-rent, use of furniture and steam heat... 18.00 | 18.00 | 18.00 |
| Gymnasium fee | 3.00 | 3.00 |
| *Athletic fee | 3.00 | 3.00 |
| Total | \$56.00 | \$56.00 |

Beginners' classes in Latin, Greek and German will be organized during the first week in April. Students entering the school at this time are charged two-thirds of the fees for the second semester.

Students do not board in the building, but in clubs and private families at a cost of from \$2.50 to \$3.50 a week. Washing is about \$1.75 a month. A deposit of one dollar will be required at

* By payment of this fee students are entitled to free admission to all intercollegiate contests. Students who do not feel able to pay the fee can be excused by making application to the Athletic Council.

the beginning of the year to insure the return of keys and the proper care of the room. This will be returned to the student at the end of the year if no damage has been sustained. Day students are charged for tuition, general fees and the athletic fee but the gymnasium fee is optional.

A discount of five (5) per cent. is allowed on all dues paid within six weeks of the opening of each semester. Money entrusted to the Principal for the use of students will be expended as desired.

For further information address,

REV. CHARLES H. HUBER, A.M., *Principal.*

SUMMARY OF ATTENDANCE DURING 1910-1911

| | |
|-------------------------------|-----|
| Seniors | 34 |
| Juniors | 65 |
| Sophomores | 72 |
| Freshmen | 58 |
| Partial Course Students | 21 |
| Special Students | 2 |
| <hr/> | |
| Collegiate Department | 252 |
| Academy | 71 |
| <hr/> | |
| Total | 322 |



INDEX

| | |
|---|--------|
| Academy, Stevens' Hall | 95 |
| Admission | |
| To Freshman Class. | |
| Methods | 19 |
| Requirements | 19 |
| Subjects | 20 |
| To Advanced Standing | 26 |
| To Partial Courses | 27 |
| Advisers, Students' Group | 75 |
| Alumni, Addresses of | 93 |
| Alumni Associations | 94 |
| Athletics and Physical Culture..... | 61, 92 |
| Athletic Field | 90 |
| Attendance | |
| On Church | 76 |
| On Class Work | 76 |
| On Prayers | 76 |
| Summary | 103 |
| Astronomy, Course in | 64 |
| Bequests, Form of | 94 |
| Bible, Student Classes in Study of the..... | 91 |
| Biblical Study, Courses in..... | 51 |
| Bills, Treasurer's | 82 |
| Biology, Courses in | 59 |
| Buildings | 88 |
| Calendar, College | 3 |
| Chemistry, Courses in | 61 |
| Christian Evidences, Course in | 52 |
| Civil Engineering, Courses in | 70 |
| Class Officers | 75 |
| Commerce and Finance, Courses in | 53 |
| Conditions in College Work | 77 |
| Course of Instruction | 41 |

| | |
|---|----|
| Debates | 91 |
| Deficiencies in College Work | 77 |
| Degrees | |
| Bachelor | 78 |
| Master | 78 |
| Economics, Courses in | 58 |
| Education, Courses in | 58 |
| Electives, Rules Governing Selection of | 76 |
| Engineering, Courses in | 70 |
| English, Courses in | 41 |
| Ethics, Course in | 56 |
| Evidences, Course in | 52 |
| Equipment, Material | 86 |
| Examinations | |
| Entrance | 19 |
| Of College Classes | 77 |
| Expenses | 82 |
| Faculty | |
| List of | 14 |
| Committees of | 17 |
| French, Courses in | 49 |
| Geology, Courses in | 63 |
| German, Courses in | 42 |
| Government, College | 75 |
| Government, Courses in Science of | 58 |
| Graduation, Requirements for | 78 |
| Greek, Courses in | 45 |
| Greek Life and Art, Course in | 46 |
| Groups of Studies, The System of | 28 |
| Description of | 28 |
| Tables of | 32 |
| Gymnasium | 90 |
| Historical | 5 |
| History, Courses in | 54 |
| Honors, List of | 79 |
| Information, General | 75 |

| | |
|---|----|
| Italian, Course in | 50 |
| Laboratories | 87 |
| Latin, Course in | 47 |
| Lectures, Public | 91 |
| Libraries | 86 |
| Literary Societies | 91 |
| Location | 11 |
| Mathematics, Courses in | 64 |
| Mineralogy, Course in | 63 |
| Municipal Engineering, Courses in | 70 |
| Museum | 88 |
| Musical Organizations | 92 |
| Periods, College Work | 28 |
| Philology, Courses in Comparative | 51 |
| Philosophy, Courses in | 56 |
| Physics, Courses in | 66 |
| Physical Culture | 61 |
| Political Science, Courses in | 58 |
| Psychology, Course in | 56 |
| Press Club | 92 |
| Prizes, List of | 80 |
| Publications, College | 92 |
| Reading Room | 87 |
| Records | 77 |
| Registration Fee | 83 |
| Reports | 78 |
| Roman Law and History, Courses in | 49 |
| Romance Languages, Courses in | 49 |
| Rooms | |
| Assignment of | 84 |
| Rental Rates | 84 |
| Sanitary Science, Course in | 60 |
| Scholarships | 82 |
| Spanish, Course in | 50 |
| Stevens' Hall, The Academy | 95 |

| | |
|-----------------------------|--------|
| Student Council | 17, 75 |
| Interests | 91 |
| Advisers | 75 |
| Teachers, Courses for | 58, 93 |
| Terms and Vacations | 75 |
| Trustees, List of | 12 |
| Units, College Work | 28 |
| Y. M. C. A. | 91 |







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